ENGINEERING NEWS-RECORD

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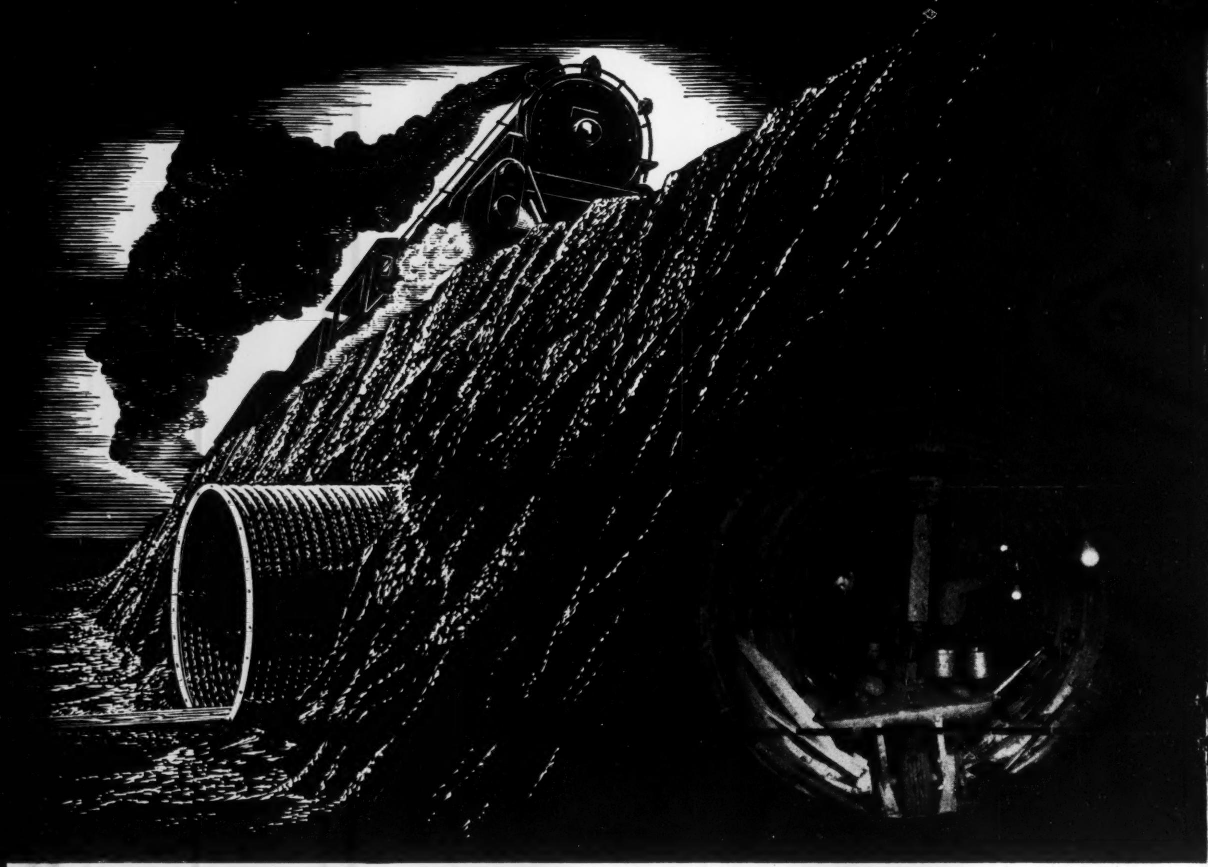

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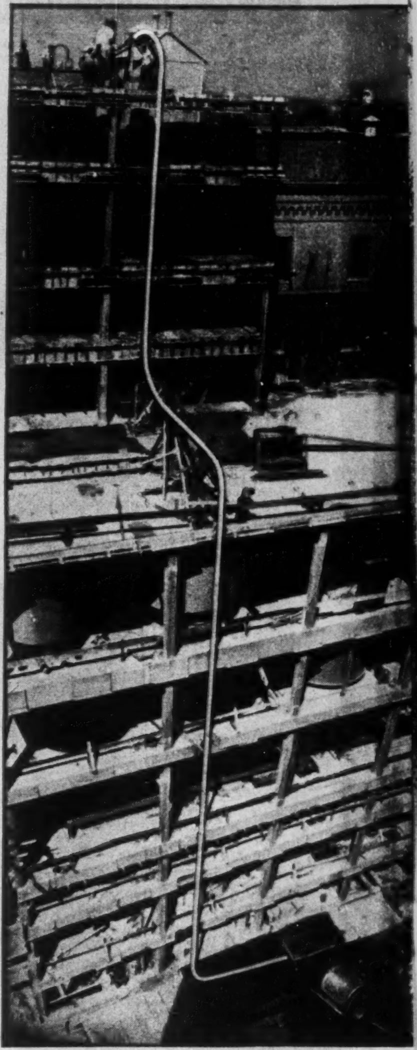

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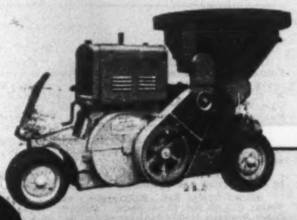

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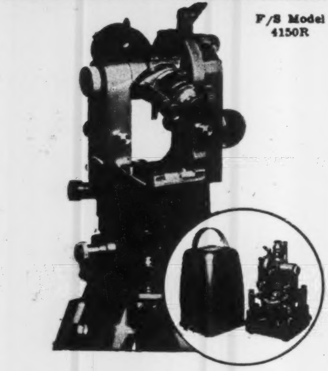

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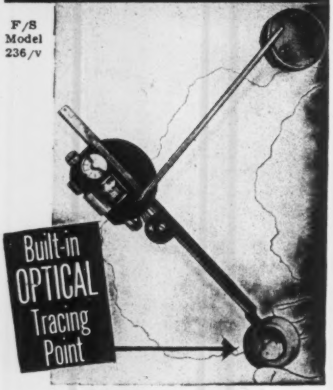

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Volume 149 October 9, 1952 No. 15

Waldo G. Bowman
Editor

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Robert F. Boger
Publisher

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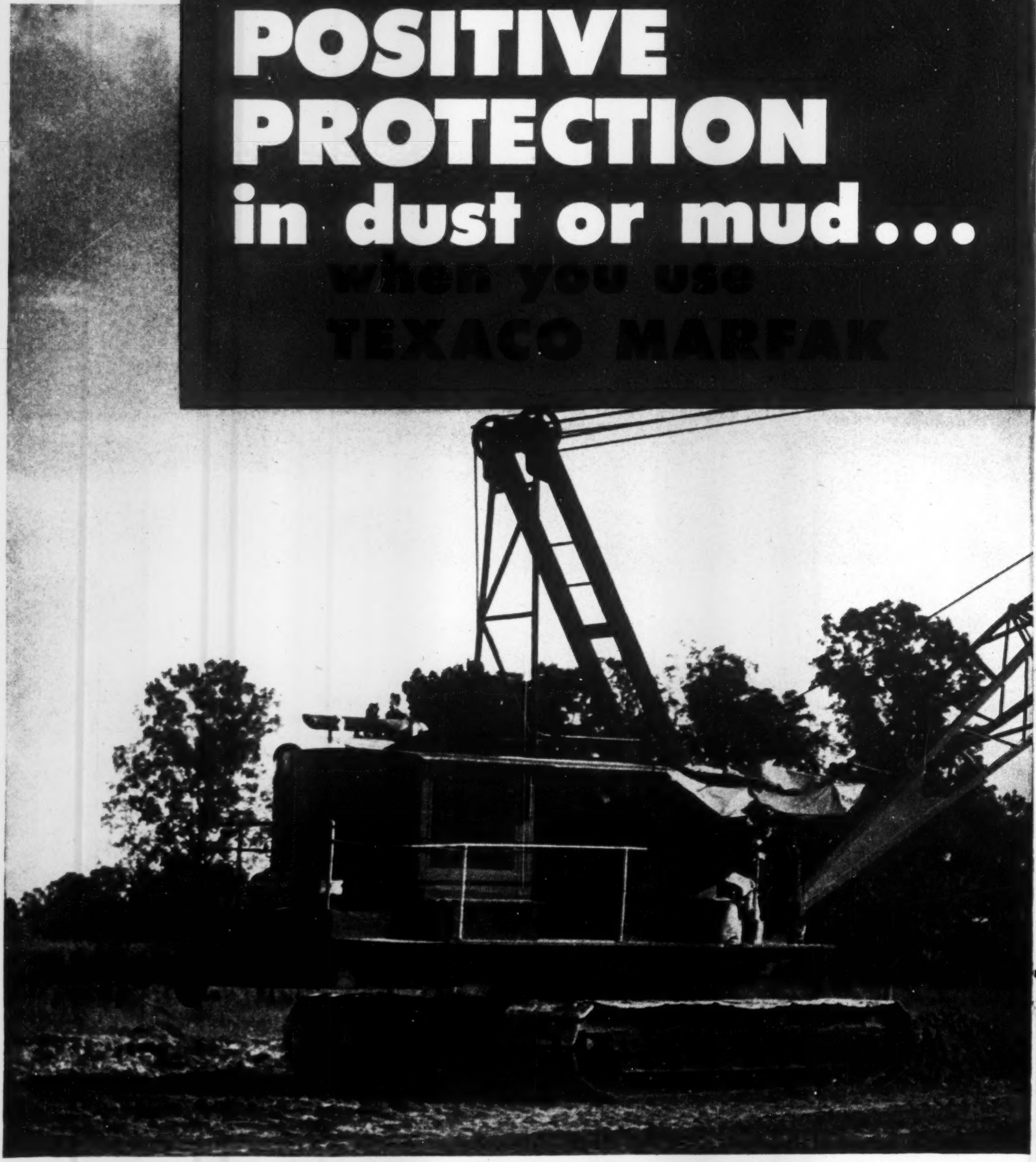

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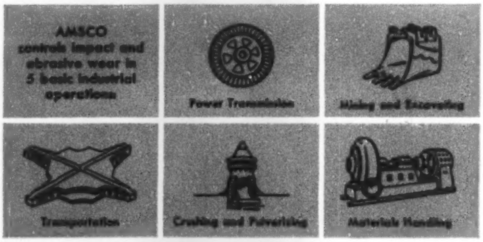

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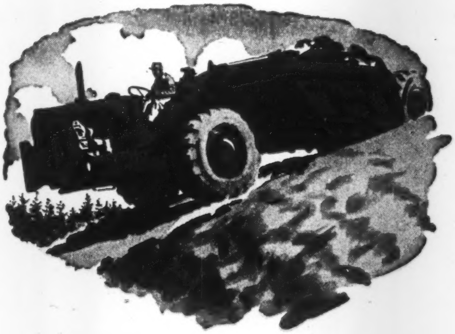

Construction men in the field have learned to count on Cummins Diesels for dependable power day in, day out.

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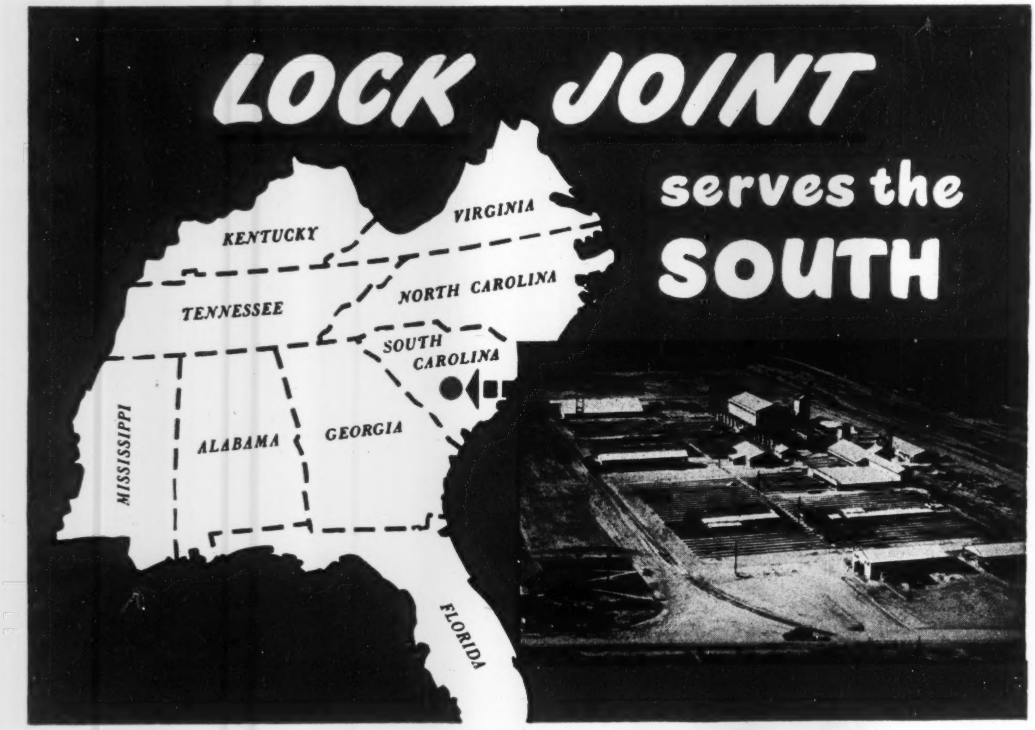

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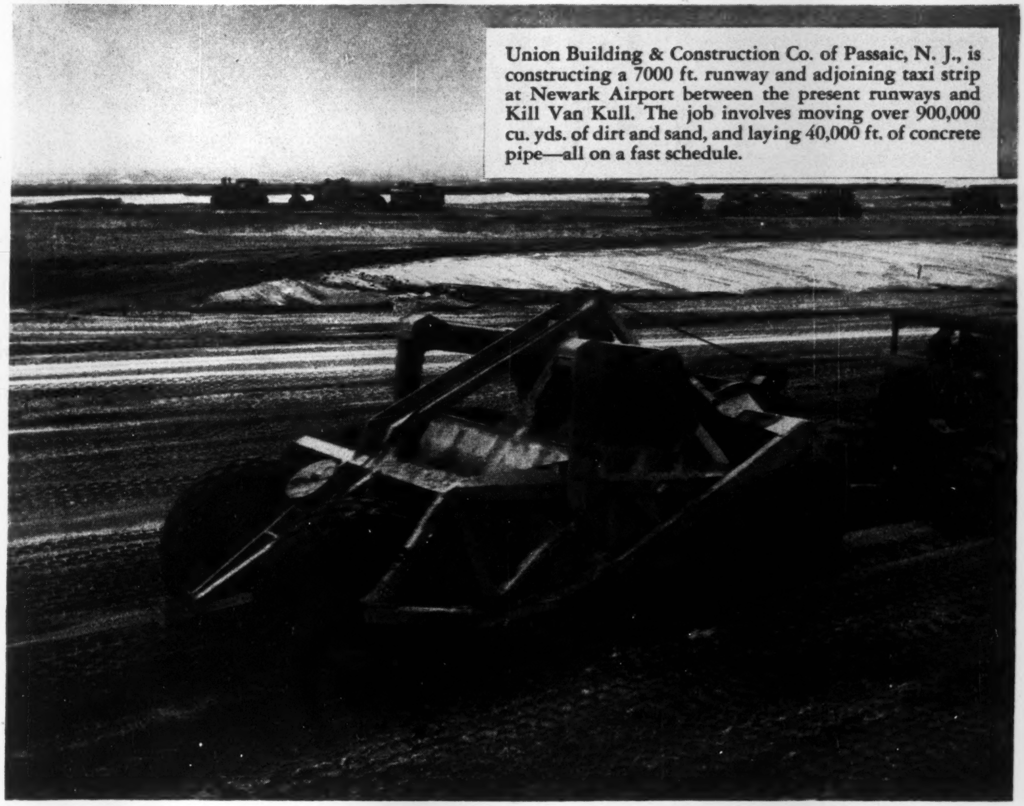

Union Building & Construction Co. of Passaic, N. J., is constructing a 7000 ft. runway and adjoining taxi strip at Newark Airport between the present runways and Kill Van Kull. The job involves moving over 900,000 cu. yds. of dirt and sand, and laying 40,000 ft. of concrete pipe—all on a fast schedule.

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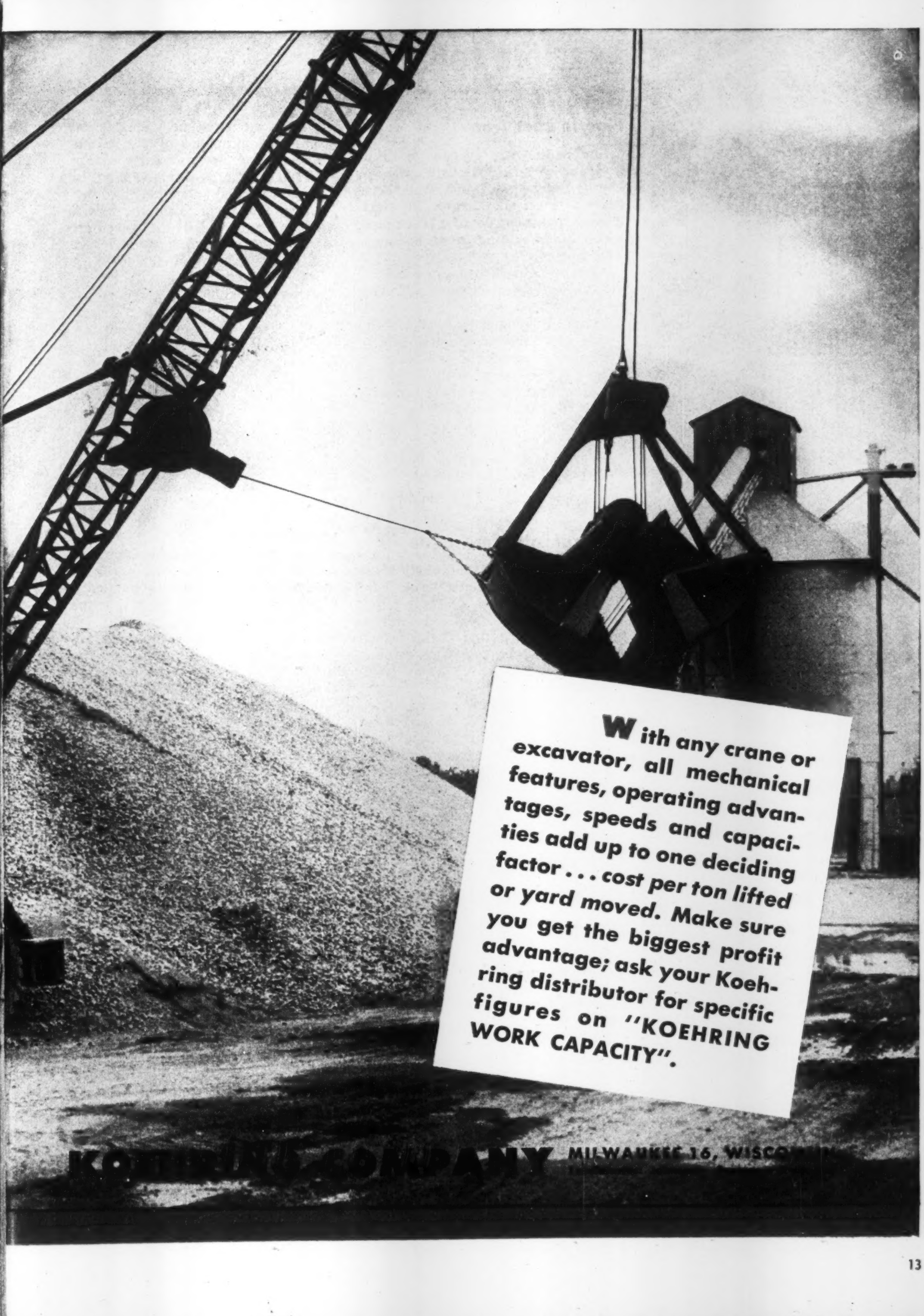

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READER COMMENT

Pipe is cast iron

Sir: In the Aug. 14 issue of ENR, p. 51, is an article describing a pipe line crossing under the Willamette River in Portland, Oregon, in which it states that the material is STEEL pipe, which is like adding insult to injury. The pipe is CAST IRON.

This is one particular job where we put in a great deal of time and effort in laying it out, making some special patterns, shipping the material ahead of schedule and sending a man to Portland to instruct the contractors in the right method of making up the joints, and here your publication pulls a nice, fat "boner" and gives the credit to steel pipe.

LESTER LONG,
Vice President,
American Cast Iron Pipe Co.,
Birmingham, Ala.

Federal aid for roads

Sir: In your July 31 editorial "More Road Money for States" you have made an assumption which is rather common but not valid. I refer to your presumption that if the federal government stops collecting gasoline taxes it will stop paying federal highway aid.

Perhaps the federal excises should eventually be repealed as an unfair burden on highway users. The same thing can be said of other excises, too, such as those on liquor and tobacco (incidentally, no one argues for a federal handout to liquor and tobacco interests equal to the excises on them). However, it seems logical that there is a definite responsibility for federal aid from general funds to help knit together an interstate highway system from the standpoint of benefiting interstate commerce and contributing to our national defense. This amount of federal aid should come from all taxpayers and certainly not from the excises on the users alone. Personally, I don't see any connection between this responsibility of the general taxpayer (federal aid to highways) and any special excises levied for the purpose of augmenting the treasury during a period of emergency when we are trying to balance the budget.

HENRY K. EVANS
Highway Transportation Specialist
Chamber of Commerce of the U. S.
Washington, D. C.

In the editorial in question we observed that if the federal government withdraws from the field of gasoline taxation, as proposed by the recent Conference of Governors, it could be expected to stop paying federal aid to the states for highway work.

We don't expect to see the federal government do what the governors proposed, so whether our conclusion that Congress would follow that action by dropping federal aid to highways was valid probably never will be decided. We still think it a logical conclusion in view of the difficulty Congress is having in finding money to meet the federal budget. Editors.

Faith in model analysis

Sir: We have noted in two articles (ENR May 22, p. 25, and Aug. 28, p. 22) reference to the Presan analysis of the Atlas Terminals waffle slab which collapsed May 9, 1952. We wish to clarify the part this analysis had in the project.

A Presan analysis of a homogeneous scale model of this structure was made to determine the bending moments. Our usual practice of comparing the total Presan moments across the slab with the statical moments was followed. This comparison showed the total of the Presan moments to be slightly in excess of the theoretical statical moments. The results of the Presan analysis giving the distribution of the bending moments within the slab were supplied to the designing engineer for his use in the design of the structure.

In the various investigations into causes of this failure, including a careful inspection by the writer, failure due to flexural stresses was eliminated as a possible cause. There was no evidence on the site of any failure or even overstress of the reinforcing steel.

It was apparent, from inspection, that this structure did not act monolithically and that the final collapse occurred due to excessive shear or diagonal tension. I believe that the blocks were not sufficiently bonded by the grout in the ribs, so that they cracked away from the grout in the area adjacent to the solid portion of the slab. Thus, the entire shear fell on the thin grout section, which was then severely overstressed, causing failure.

It is obvious, in any case, that the structure would not have failed had it acted monolithically.

GERALD BOWEN
President Presan Corporation
Los Angeles, Calif.

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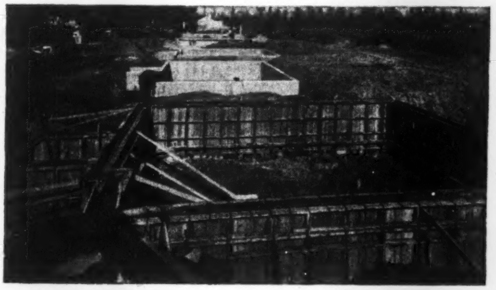
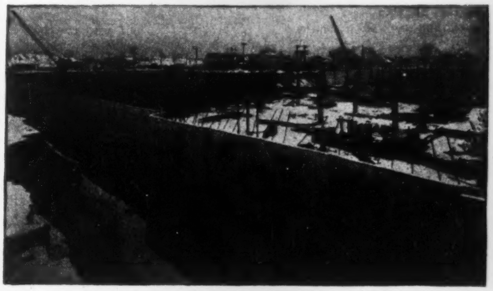
engineered to fit special needs...



Mass Production Made Easy with Symons System

Robert E. Judge, Concrete Contractor, Bellwood, Illinois

400 concrete foundations were expertly framed in record time with Symons Forms. "Weather and material permitting, these 25′ x 32′ foundations were set up in four hours by three men," stated the contractor. This rapid, economical means of form erection can be accomplished because panels are standarized and the erection hardware, which consists of three basic pieces, is easily secured.



Reinforced Forms for High Walls, Fast Pours

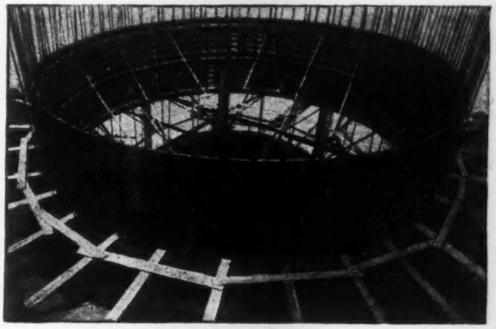
James Stewart, General Contractor, Chicago, Illinois

Pouring of these high walls with pressures from 650 to 1500 pounds per square foot required Symons ¾″ Plywood Forms with steel ribs every 12″. These heavy duty forms allowed the use of additional ties where the pressure was the greatest. Setting up and stripping was executed at the lowest possible cost due to the Symons System of securing forms and ties in one operation.

Setting Up Forms on a 16′ Battered Wall

James Leck, General Contractor, Minneapolis, Minnesota

Ties were placed in position when outside forms were erected. After erecting steel, inside forms were set in place and secured to the ties. Battered walls are handled similar to vertical walls, the only difference being the variance in the length of ties. Symons provides any special length ties promptly at little or no extra charge. Scaffolding was secured with standard hardware.



Setting Up Forms for Sewage Disposal Tank

G. L. Tarlton, General Contractor, St. Louis, Missouri

Steel rib panels with V shaped fillers at each joint were employed. The connecting bolts used in joining two panels and for anchoring ties pass through these fillers. Reinforcing is placed prior to locking of outside forms to panel ties. Symons Forming System is a simple method of forming that is adaptable to straight walls, battered walls, curved walls and slabs.

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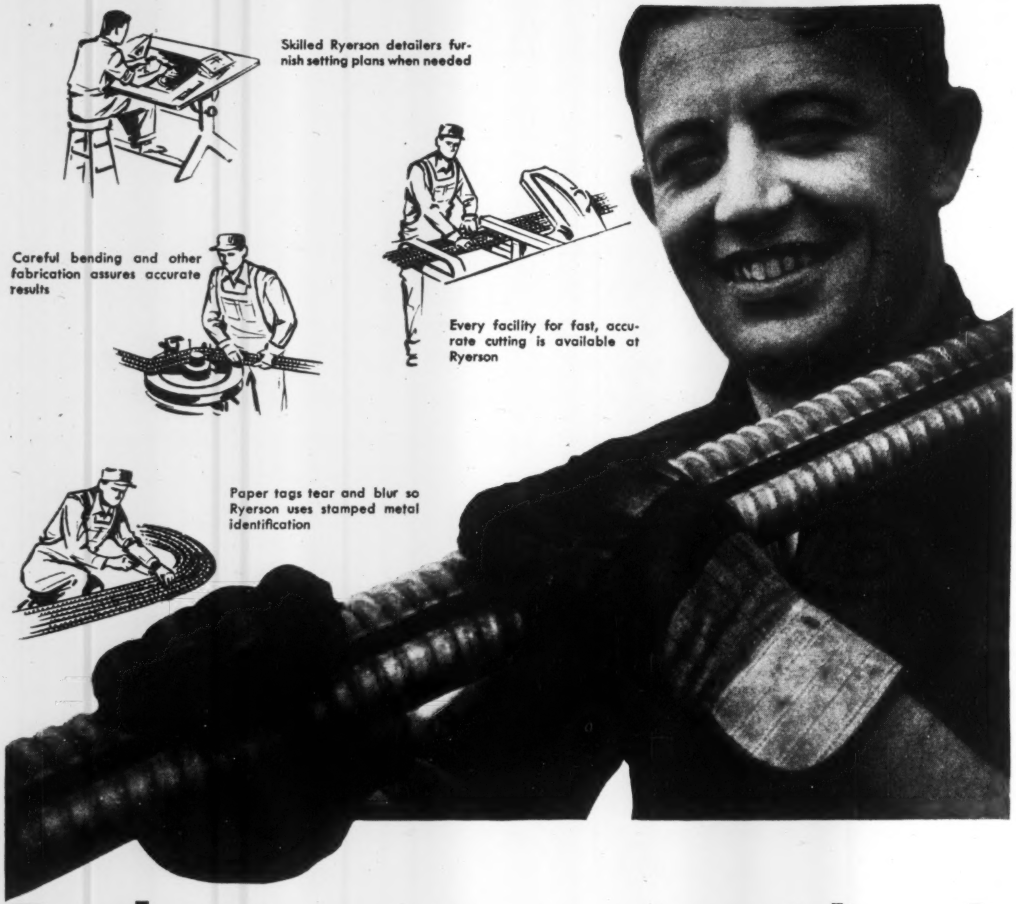

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At Ryerson your bars are accurately cut and bent to specification by experienced operators and every bar or bundle is identified with a permanent metal tag. Moreover, large Ryerson facilities enable you to keep crews steadily supplied even when a job jumps ahead of schedule. Still there's no piling up of steel on the site.

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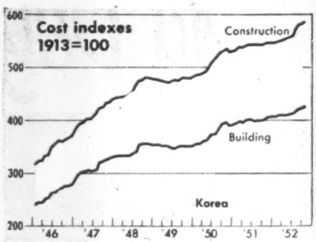
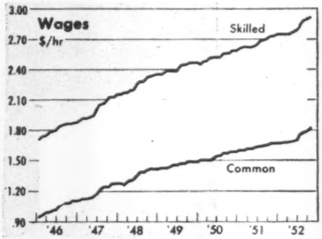
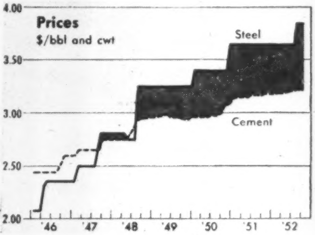
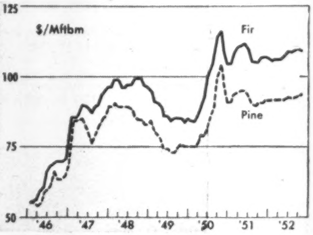
OCTOBER CONSTRUCTION SCOREBOARD









ENR INDEXES (1913=100), 20-cities' average	1952 October	% Change from last Month	% Change from last Year
Construction Cost	588.43	+0.4	+ 7.7
Building Cost	424.77	+0.08	+ 5.3

WAGE RATES, 20-cities' average	1952 October	% Change from last Month	% Change from last Year
Common	$1.817	+0.8	+10.4
Skilled (aver. 3 trades)	2.921	+0.4	+ 7.4
Bricklayers	3.247	+0.3	+ 7.8
Structural Ironworkers	2.849	+0.07	+ 6.7
Carpenters	2.667	+0.9	+ 7.7

MATERIAL PRICES, 20-cities' average	1952 October	% Change from last Month	% Change from last Year
Cement, bulk, per bbl	$3.219	0.0	+ 1.6
Structural Steel, (3-mill aver.), per cw	3.850	0.0	+ 5.5
Sand, per ton	2.108	0.0	+ 0.9
Lumber, 2x4 Fir, per M. ft. bm	109.444	−0.6	+ 2.4
Lumber, 2x4 Pine, per M. ft. bm	93.100	+0.03	+ 1.9
Common brick, per M	31.601	0.0	+ 1.6
Ready-mixed concrete, per c. y.	11.280	+0.4	+ 3.7
Structural Clay Tile, 3x12x12 per M	151.350	+0.04	+ 1.0

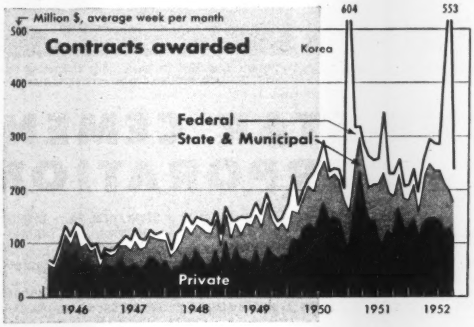
CONTRACTS AWARDED (Millions)	1952 Sept.	1952 9-Mos.	% Change from '51 Sept.	% Change from '51 9-Mos.
Total U. S. (ENR reported)	$952.2	$12,256.0	+ 3.8	+14.3
Private	441.9	5,130.4	− 3.0	− 9.1
Public	510.3	7,125.6	+10.6	+40.3
Federal	242.7	3,975.4	+54.9	+106.4
ENR Volume Index, '13=100	441	606	− 1.3	+10.2

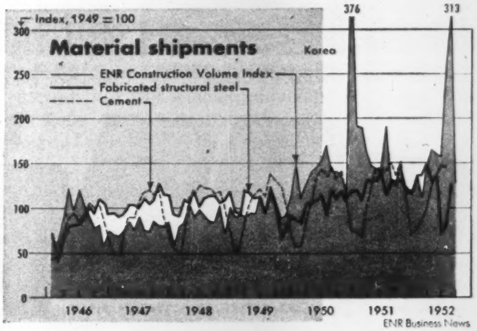
NEW CAPITAL (Millions)	1952 Sept.	1952 9-Mos.	% Change from '51 Sept.	% Change from '51 9-Mos.
Total	1,052.1	13,638.9	−55.8	+46.9
State & Municipal Bond Sales*	199.8	2,386.4	+24.9	+35.1
Corporate Security Sales	202.8	2,809.9	−51.0	+ 7.0
Federal (non-federal work)	3.2	855.8	−98.7	+156.1
Federal (federal work)	646.3	7,586.8	−58.6	+66.5

* Excluding public housing.

MATERIAL SHIPMENTS & LABOR SUPPLY (Millions)	1952 July(J) Aug.(A)	1952 7-Mos.(7) 8-Mos.(8)	% Change from '51 Mo.	% Change from '51 Yr.-Cum.
Cement, bbls, Bu. of Mines	25.084(J)	138.248(7)	+ 3.4	+1.5
Fabr. Struc. Steel, tons, AISC	.225(A)	1.721(8)	− 5.1	−4.9
Lumber, mil. ft. bm., NLMA	3.030(J)	21.161(7)	+10.5	−5.4
Lumber Prod., mil. ft. bm., NLMA.	3.196(J)	21.349(7)	+ 1.6	−7.8
Contract Constr. Employ., BLS	2.778(A)	2.501(8)†	− 1.1	−0.7

† Average.





152 Floors CONCRETED IN 60 Working Days

'INCOR' CUTS CONCRETING TIME IN HALF
ON NEW YORK CITY'S THROGG'S NECK HOUSES

● Project after project confirms the advantages of the reinforced-concrete frame—for designer, builder and owner. Well-planned concreting schedules produce economies which help offset rising construction costs.

On the 17 three-story and 12 seven-story units of Throgg's Neck Houses, the Contractor scheduled concreting to take full advantage of dependable 'INCOR' 24-hour stripping strengths. 'Incor' kept the job humming—carpenters, steel setters and mechanical trades (over 600 men) meshed their activities with assembly-line precision. First pour, April 1 . . . last pour, July 3 . . . 9 days rain . . . 152 floors concreted in 60 working days.

"By using 'Incor', we cut concreting time in half," said the Contractor. Quality concrete, too, every yard of it. And the job, completed in warm weather, saved heat protection and tarp costs.

Sound reasons why the use of 'Incor'*, America's FIRST high early strength portland cement, is standard practice—*for quality concrete at economical speed that produces lowest cost.*

*Reg. U. S. Pat. Off.

THROGG'S NECK HOUSES, Bronx, N. Y.

Owner:
NEW YORK CITY HOUSING AUTHORITY

Architect:
KEALLY & PATTERSON, New York

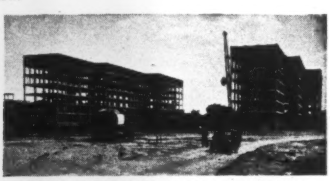
Structural Engineers:
SEELYE, STEVENSON & VALUE, New York

General Contractor, Superstructures:
D. M. W. CONTRACTING CO., INC.
Brooklyn, N. Y.

Ready-Mix 'Incor' Concrete:
COLONIAL SAND & STONE CO., INC.
New York

Easy-placing 'Incor' mixes speed concreting, dependable high early strength saves time, forms, money.

Clock-like 24-hour stripping schedules . . . you fill forms today, strip and re-use tomorrow.


'Incor' saves 50% on forms, cuts concreting time in half; 152 floors concreted in 60 working days on this job!

LONE STAR PORTLAND CEMENT
'INCOR' HIGH EARLY STRENGTH PORTLAND CEMENT
LONE STAR Air-Entraining PORTLAND CEMENT
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LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 17 MODERN MILLS, 125,600,000 SACKS ANNUAL CAPACITY

- **Supreme Court at bat**—The construction industry this week was lining up with more than ordinary interest to watch the start of another "series," as the U. S. Supreme Court opened its fall sitting this week. Here is the betting:

1. The Roanoke Rapids case. At issue: Construction of a $27-million hydro plant in North Carolina, protagonists being the Virginia Electric and Power Co., which wants to build the plant, and Secretary of Interior Oscar Chapman, who wants to build it himself. The betting: even money.

2. The Ohio Turnpike. Protagonists: The Ohio Turnpike Commission, and a group of disgruntled taxpayers who want the U. S. Supreme Court to upset an Ohio Supreme Court decision validating the commission's bonds.

The betting: heavily in favor of the commission. Supreme Court seldom overrules a state court on interpretation of state law.

3. Labor rulings. Disputants: An Alabama construction company (Ledbetter Erection Co.) which contends state courts, like federal courts, can enjoin unions for "unfair" practices as defined by Taft-Hartley and therefore the employer can take his case to state courts instead of the NLRB; and the AFL Building Trades Council. The betting: even money.

4. Water supplies. New York City, on one side, wants to amend a 1931 decree so that it can take more than 440 mgd from the Delaware River to meet anticipated increased needs by 1967. Pennsylvania opposes any such move; New Jersey isn't too happy with it.

The betting: favors New Jersey and Pennsylvania, on the ground that the court may not be able to act on the matter—the report of a special master appointed June 9 won't be filed with the court until late in the term.

5. Los Angeles public housing. The City of Los Angeles, which is seeking upset of a California high court decision which ruled that a contract between the city and the City Housing Authority is binding, even though the city and its voters since reversed themselves and thumbed the project down (ENR Jan. 19, p. 25).

The betting: The case has not been accepted by the court. It will go on the docket soon, but when is anybody's guess.

- **Who's got aluminum?**—Undismayed by an earlier failure and international unhappiness with the whole question, the U. S. government last week jumped right back into the aluminum picture. Defense Production Administration called for an upward revision of domestic aluminum production goals —from 1.5 million to 1.7 million tons by 1954.

DPA tried the same thing back in April—inviting companies (other than Alcoa, Reynolds and Kaiser) to submit proposals for added capacity. It got no results, despite offers of fast tax writeoffs and market guarantees. And the whole aluminum production situation is confused by the squabble between Canada and the U. S. over the relative merits of Alcoa's proposed $400-million job in Alaska and a Canadian development at Kemano (ENR Sept. 25, p. 32). Canada—afraid that the Alaskan development might hurt Kemano's market before it gets started, is dragging its feet on Alcoa's Alaska project, where it controls water rights.

- **Concrete tempest**—That scandal in the Ohio State Auditor's office (ENR Oct. 2, p. 19) over contractor-contributed funds for "concrete" that were used for political campaigning, remained at teapot size. Auditor Joseph T. Ferguson (who opposed Senator Taft two years ago) said the funds were collected by two aides without his knowledge, and would be returned; federal investigators bowed out when they discovered they had no jurisdiction.

DURAPLASTIC Aids Proper Concrete Placement in World's Biggest Bus Terminal

PORT AUTHORITY BUS

General Contractor: Turner Construction Co., New York, N. Y. Ready-mixed concrete supplied by Metropolitan Sand & Gravel Co. New York, N. Y.

- To get a more uniform, more workable mix for New York City's new $24,000,000 bus terminal, Turner Construction Company used Duraplastic* air-entraining portland cement—31,000 barrels in all. Duraplastic requires less mixing water for a given slump. It gives a more plastic mix. Such mixes aid proper placement... result in an improved surface appearance.

The greater plasticity of Duraplastic concrete is due to billions of tiny air bubbles entrained in the mix. They minimize water gain and segregation. As a result, finished concrete made with Duraplastic is also fortified against the effects of freezing-thawing weather.

YET DURAPLASTIC* COSTS NO MORE

It sells at the same price as regular cement. Complies with ASTM and Federal Specifications. For free booklet telling how Duraplastic can help you on your next job write: Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

*"*Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company*

OFFICES: *Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.*

ENR-D-131RR

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New rises in construction forecast

• Long-range outlook

You can expect the total volume of new construction in 1953 to maintain the record level of the current year—roughly $32 billion at 1952 prices.

Overall spending on new construction next year may fall slightly below that level or rise a little above it. But construction experts in Washington—both inside and outside the government—foresee no variation in either direction exceeding 3%.

There will be changes up and down in construction categories that make up the total. Biggest of the expected changes are predicted for private homebuilding, public nonresidential building and highways.

Taking a consensus of forecasts by the various experts, whose estimates differ somewhat, Engineering News-Record has compiled the schedule of 1952 and 1953 expectations shown in the table below:

According to this composite of current thinking a drop of about 6% in private residential building will cause the total for private construction to fall below this year by some $500 million. Under public construction, on the other hand, increases in nonresidential building and highways are expected to boost the public total by about $800 million.

In making their estimates for 1953—and even for 1952—the experts have had to rely on judgment, experience and partial information so far collected. Not until October construction figures are recorded and 1952 estimates have been adjusted will the government attempt to make a definitive appraisal of the 1953 outlook. After a lapse of two years caused by the emergencies, construction people in the government hope to issue a forecast about the middle of November.

• Forecast factors—This week, though government officials feel that the forecast probably will be close to the figures given in the table. Top government experts reason this way:

For the first time since Korea, metals controls will not determine the volume of the different types of construction. Total construction will be at the same high level as in 1952. The big question mark is private residential building. Right now, the forecast is for 900,000-950,000 housing starts in 1953. The 1952 total is expected to hit about 1,100,000—the same as in 1951, but below 1950's record high of 1,390,000, government officials say.

In the private nonresidential category, you can expect industrial construction to be down from this year's level; but the rate for warehouses, office and loft buildings, stores, restaurants, and garages will rise. You will see education, social, and recreational construction boosted; hospital and institutional remain the same; and religious and miscellaneous nonresidential construction decline. Farm construction will stay at the 1952 level. Public utility construction will be hiked sharply.

Increases in public construction, according to top government economists, will stem from industrial work specifically, by the Atomic Energy Commission, military and naval, and highway. There will be moderate gains in sewer and water construction to catch up with the lag behind private residential building. Hospital and institutional construction will be down slightly, and conservation and development work will be at this year's level.

Long-range estimates shown in the table are much more speculative. With some modifications those figures are based on long-term projections by the construction economics office of a top-level agency. Like the short-term estimates, the long-range projections rest on the assumption that the defense effort will be successful in preventing major military conflicts.

As indicated by the reduced construction total for 1954, the projection makes allowance for a downturn that economists have been saying may come in late 1953.

Fast recovery is anticipated from this decline, as shown by the high construction figure for 1955. Similar economic adjustments are expected between 1955 and 1960, but these corrections will have been completed by the latter year, the projection assumes. And you probably will see construction climb to higher levels, more than 20% above this year.

• First quarter has lag

Allotments of structural steel for the first quarter of 1953 don't promise

Here is the construction outlook

(Billions of 1952 dollars)

	Estimates		Long range guesstimates		
	1952	**1953**	1954	1955	1960
Total new construction	**31.9**	**32.2**	31.0	33.4	41.3
Private	**21.0**	**20.5**	19.5	21.0	26.0
Residential	**10.6**	**10.0**	10.5	11.0	12.0
Nonresidential building	**4.8**	**4.8**	4.5	5.0	7.0
Industrial	**2.3**	**1.9**	1.6	1.6	2.5
Commercial	**1.1**	**1.3**	1.4	1.8	2.5
Other nonresidential	**1.5**	**1.6**	1.5	1.6	2.0
Farm	**1.7**	**1.8**	1.7	2.0	2.0
Utility and other	**3.8**	**3.9**	3.8	3.5	5.0
Public	**10.9**	**12.0**	11.7	12.4	15.3
Residential	**.7**	**.6**	.7	.9	1.3
Nonresidential building	**3.9**	**4.5**	4.4	4.0	4.5
Industrial	**1.8**	**1.9**	1.6	1.5	1.0
Educational	**1.6**	**1.7**	1.8	1.8	1.5
Hospital	**.4**	**.5**	.5	.7	1.0
Other	**.3**	**.4**	.5	.5	1.0
Military	**1.7**	**1.8**	1.0	1.0	0.5
Highways	**2.6**	**2.9**	3.3	3.5	5.0
Sewer and water	**.7**	**.7**	.8	1.0	1.0
Conservation and development	**.9**	**.9**	1.0	1.2	1.5
Utilities and other	**.2**	**.3**	.3	.3	1.0

any increase of construction activity in the early part of the year.

The allotments are sufficient to permit work in progress to continue, but they will allow only a limited number of new starts. And those starts will consist only of projects—industrial, commercial and municipal—directly essential to the defense program.

That's the best that can be done, the Defense Production Administration said in announcing the allotments. Deputy Administrator Ralph S. Trigg explained that it will take longer to catch up on outstanding allotments of structurals than on other types of steel because of "the excessive backlog of structural orders already on the books at the time of the strike and because of the greater relative loss of production of structural steel."

Except for the Atomic Energy Commission and the Defense Department, which get all they asked for, most of the program allotments for the first quarter are even lower than for the fourth quarter. The fourth quarter allotments generally were cut well below the third.

By comparison with the third quarter of 1952, first quarter 1953 structural quotas are down 22% for electric power, 30% for schools and hospitals, 60% for housing, 14% for highways, 47% for industrial construction, 25% for commercial and municipal and 30% for Army civil works. Water resources fared well; this program was not cut. In one respect highways also did better than other programs getting a larger allotment than in the fourth quarter.

Atomic energy construction shows a big jump over third quarter with a sevenfold increase from about 12,500 tons to 87,500. The Defense Department gets a small increase, 15,000 tons over third quarter, in its 185,000-ton allotment. (See table.)

Who will get structural steel?

Third and fourth quarter, 1952, and first quarter, 1953, allotment authority
(Included within carbon steel totals)
(tons)

General claimant agencies

	3rd qtr	4th qtr	1st qtr
Agriculture, Department of	10,500	7,200	**6,300**
Army, for civil works	14,000	11,200	**9,800**
Atomic Energy Commission	12,591	72,678	**87,629**
Civil Aeronautics Admin.	6,000	3,500	**5,600**
Department of Defense	170,598	173,000	**185,000**
Defense Elec. Power Admin.	115,900	96,000	**90,000**
Defense Materials Procurement Agency	24,350	13,600	**25,760**
Defense Solids Fuels Admin.			
Coal mine construction	8,000	5,414	**5,600**
Coke oven construction	10,000	8,186	**6,300**
Defense Transport Admin.	35,000	28,000	**24,500**
Federal Security Agency			
Schools	40,946	32,000	**28,000**
Hospitals	24,800	19,540	**17,500**
General Services Admin.	5,750	4,000	**3,500**
Housing & Home Finance Agency	12,500	6,000	**5,250**
Department of Interior	670	536	**501**
Maritime Administration	19,100	15,260	**13,930**
Office of Intl. Trade—Mutual Security Agency	40,000	32,000	**24,477**
Petroleum Admin. for Defense	79,425	64,000	**60,000**
Bureau of Public Roads	135,000	106,250	**113,750**
Veterans Administration	3,100	2,480	**1,943**
General Claimants Total	768,840	701,090	**715,339**
NPA industry divisions			
Agricultural mach. & impl.	18,400	14,720	**11,040**
Aircraft	78	26	**0**
Aluminum & magnesium	0	0	**0**
Building materials	5,701	4,075	**3,075**
Canadian	55,000	44,000	**35,400**
Chemical	0	0	**0**
Communications	4,500	3,200	**3,000**
Construction machinery	39,618	30,406	**22,800**
Copper	30	20	**0**
Electrical equipment	12,772	10,099	**7,680**
Engine & turbine	32,056	29,349	**27,955**
Facilies and constn. bur.			
Construction controls	40,127	44,776	**30,000**
Industrial expansion	256,561	219,171	**137,250**
General industrial equipment	60,563	45,044	**33,782**
Iron & steel	11,000	8,800	**6,600**
Leather & leather products div.	0	0	**0**
Lumber & wood products	200	200	**0**
Metal working mach. & equip.	20,859	20,475	**14,710**
Mining mach. & equip.	11,321	9,159	**6,870**
Motor vehicle	6,400	8,113	**0**
Ordnance & shipbuilding	28,500	19,900	**17,100**
Railroad equipment	166,655	129,696	**97,347**
Scientific & tech. equip.	1,200	960	**720**
Service equipment	1,025	2,930	**2,197**
Water resources	13,445	14,000	**13,500**
***NPA Total**	793,691	670,211	**483,566**
NPA—reserve (general)	5,679	9,637	**10,000**
NPA—reserve (hardship cases)	941	494	**2,500**
CMP reg. 1; field cases and small users	27,193	22,077	**18,191**
MRO—self certification	90,678	88,679	**100,000**
Grand Total	1,680,402	1,482,057	**1,317,096**
Supply	962,000	1,415,000	**1,415,000**
Percent of supply	174.7	104.7	**93.1**

** This total includes allotments for small programs not listed.*

• **Rules change**—Reduced allotments to the other construction programs are part of the plan to bring steel supply and CMP allocations into balance by June. Shipments of structurals to fill fourth quarter 1952 orders will run deep into the first quarter, and first quarter orders are expected to extend well into the April-June period.

Third quarter structural allotments, because of the strike, exceeded the diminished supply by 75%. Advance allotments for the current quarter, maintained as valid commitments by NPA, prevented any real fourth-quarter cuts. The first substantial adjustment is made in the first quarter schedule, which is 93% of supply.

Despite talk by top controllers of keeping CMP in effect on steel until June 30, construction people expect to see the controls almost completely removed by April 1. In announcing the promised relaxation of construction controls last weekend, NPA postponed the effective date until May 1. The agency earlier had said that it would put the changes into effect April 1 (ENR Aug. 28, p. 23).

At the same time, NPA revoked the Housing Order M-100 and incorporated it into CMP Regulation 6. The only change in the housing regulation is that owners may now use without limitation inventory they had on hand before Oct. 1, 1951.

Changes in the construction rules to take effect May 1 are the same relaxations previously reported (ENR Aug. 28, p. 23 and Sept. 18, p. 27). Self-authorization will be extended to recreational projects, and limits for self-authorized projects will be generally increased. Builders can place advance orders for controlled materials under the higher ceilings, but deliveries of the new quantities cannot be made until after May 1.

• More build-up sought

It's time to decide whether our present defense mobilization program is adequate or whether we need more—more weapons, more industrial expansion, more raw materials.

That's the feeling of Mobilization Director Henry H. Fowler. And he makes it pretty clear in his first quarterly report as the boss of the Office of Defense Mobilization he's plumping for a broader defense build-up.

With two years of mobilization behind us, Fowler points out, we are at an ideal point to reassess our defense program. Weapons deliveries will hit a peak around mid-1953. Raw materials generally are in freer supply and are becoming more available every month. We have the industrial plant and facilities to meet the current goals for rearmament. But to attain real national security, Fowler contends, we must achieve three more objectives:

1. Build up supplies of certain critical materials that still are not adequate to meet requirements for war. These include aluminum, titanium, electric power and oil.
2. Obtain special machine tools and other production equipment that require considerable time to build that would be needed in war.
3. Add to present manufacturing capacity the extra fabricating and finising plant and equipment for end items and components that must be produced in volume during a war.

• **What is wanted**—Among the new plants that Fowler wants built are facilities to produce the following: high-temperature alloy steel, military-type cranes and shovels, crawler-type tractors, tapered aluminum sheet, electrical connectors, antifriction bearings, marine turbines, heavy steel and aluminum castings, heavy forgings, heavy steel plate, oil refinery equipment.

Present capacity for producing these items is adequate, or nearly adequate, to meet requirements for the present limited mobilization program. That's why government grants of five-year tax amortization for industrial plant are falling off. The tax amortization program, so far, has been tied to the short-of-war defense build-up.

As of September 24, fast amortization had been permitted for facilities valued at a total of $13.9 billion, out of applications totaling $24 billion. During the first three weeks of September, requests for fast amortization dwindled to a rate of $500 million a month, as compared with March, 1951, the peak period for applications, when $5 billion in requests were received. And the backlog of pending applications dropped from 5,447 last April 24 to 2,065 on September 24.

DEFENSE MOBILIZER FOWLER wants more industrial plants.

Of the new plants for which rapid amortization has been allowed, 48% will be completed by the end of this year. More than $16 billion of this new plant will be in place by next summer, Fowler predicted.

Other items from Fowler's report:

• Construction machinery—"The construction machinery industry has reported some notable successes in its search for substitutes for copper, nickel, and molybdenum. One manufacturer has substituted boron-treated chrome steel for nickel and molybdenum alloys in certain parts of its crawler-tractors and trucks, with savings of 70 to 80% in nickel and molybdenum."

• Atomic construction—"The atomic energy projects are now employing almost 3% of the country's contract construction workers, with 73,000 at work on A.E.C. facilities in mid-August . . . employment on A.E.C. construction will continue to climb this fall. . . ."

• Defense housing—"As of September 17, about 15% of the 91,000 private defense housing units programmed . . . were completed and another 19% were under construction. . . . An acceleration in defense housing construction is indicated by the fact that over a third of those started to date were put under construction in the last three months. . . ."

• Mortgages—"Residential mortgage debt has been rising at a somewhat higher rate this year than during the second half of last year. . . ."

• Military construction—"On June 30, 1952, the Department of Defense had $6.2 billion of construction work under way at Army, Navy and Air Force installations. About two-thirds of the total program, an estimated $2 billion, is now in place. Projects costing over $5 billion are expected to be completed and ready for use on or before December 31, 1953, and practically all of the remainder are now scheduled for completion during the following twelve months."

Committee raps military construction

A twelve-day tour of fifteen U.S. military bases by a congressional committee has produced another blast at the military services for extravagance, waste and failure to exchange construction information.

Rep. Porter Hardy, chairman of the Government Operations Subcommittee of the House Committee on Executive Expenditures, said the trip was taken to give committee members a first-hand knowledge of the bases for use in future hearings.

Hardy reported finding evidences of unnecessarily wide variations in construction specifications for facilities of similar function—barracks, for instance—which are built by the Army, Navy, and Air Force. The committee felt, according to the statement, that economics might have resulted if there had been a fuller exchange of information among the services.

In some places the group found specifications which were unnecessarily rigid. They felt this might mean in the cases of permanent structures designed for highly specialized uses that an early functional obsolescense might occur.

The group also felt that rigid specifications might limit the opportunities for alternate bidding by contractors who could offer more economical but equally desirable processes and techniques for construction. At a Navy base they found that Marine barracks were being built from prefab concrete slabs. The lower cost of this type construction resulted in a favorable cost per man for troop housing but the subcommittee found no other evidence of this type of construction throughout the trip.

The subcommittee, which has the whole range of government operations within its jurisdiction, has concentrated on military public works this past year. It began with a pilot study on Andrews Field last January, which produced charges of bungling in construction of troop housing.

Another report on over-production of troop housing in the Air Force produced charges that $80 million worth of unneeded space had been constructed.

Ohio wields new water pollution club

Last week, as the State of Ohio's New Water Pollution Control Act of 1951 became fully operative, the Buckeye State was faced with a half-billion-dollar pollution control program.

Ohio cities had an estimated $300-million worth of construction to put in place to bring their disposal facilities up to par. Some 500 Ohio industries had another $200 million to spend to clean up their liquid wastes.

One billion gallons of untreated municipal and industrial wastes now pour into Ohio's surface waters daily. Dr. John D. Porterfield, Ohio health director and chairman of the State's new Water Pollution Control Board, puts the situation this way:

"We have been threatened with a severe loss of this great resource (water) by almost deliberate destruction of it." But he praised the new law as a means of making streams valuable again: "We are now, we believe, at the turn of the tide."

Ohio's old law (the Ragan Act) was seriously deficient in its failure to deal effectively with industrial wastes as well as sewage (ENR Oct. 4, 1951, p. 112).

Under the new water pollution control act, a five-man board has the authority it needs to abate pollution—including investigation, research and education. It can require construction or modification of waste disposal facilities and will pass on all future work.

• **Industrial problems**—The formula will continue to be "Cooperation, not litigation; persuasion, not prosecution," according to Dr. Porterfield and Attorney General C. William O'Neill. But the persuasion to cooperate can get pretty strong, as 30 cities cited this year have found.

Industries in Ohio are brought into line for the first time by the new clean streams act.

As soon as hearings can be held to determine whether each particular industrial waste can be treated, permits are to be required for dumping these wastes into streams. Each permit will be for a definite period, from 6 to 24 months, to be extended only as the applicant completes each phase of a program for adequate treatment.

Industry hearings began last spring with 183 food processors—canners, meat packers and dairies. There was no question about treatability of the wastes, so the board issued adjudicative orders to each plant individually. Any appeal of the order will apply only to the appealing firm—not to the entire food processing industry.

Second industry heard was Ohio's big metal finishing group (electroplaters, etc.). That left about eighteen other basic industries to be heard. It was impossible for hearings to be completed by Sept. 27 when the new law took effect, so the hearings continue.

• **Municipalities**—Permits are being issued to cities and industries under the new law just as fast as the Water Pollution Control Board can act on them. All but about 30 cities made the Sept. 27 deadline. About half of the state's 500 industries are covered so far. The rest will not be required to file for permits until hearings have been held on whether their wastes are treatable. But many have volunteered for permits without waiting for hearing.

Penalty for failure to obtain a permit or for dumping untreated wastes is $500 fine or one-year imprisonment, or both. Each succeeding day's violation is considered a new one.

Cities accepting industrial wastes for treatment are responsible for that treatment under the law—industry being liable only when its wastes flow directly to surface waters.

City by city, this is Ohio pollution abatement progress as it stands today:

Cincinnati (pop. 622,400) has its Little Miami sewage treatment plant well along toward 1953 completion at a cost of $5.3 million. Another $30-million worth of sewers and sewage works are planned.

Canton (pop. 116,000) is scrapping an old plant, building a $2.5-million new one for use late this year.

Columbus (pop. 500,000) has a $3.5-million expansion planned.

Cleveland, largest Ohio city, and industrial Akron have expansion programs under way. But Youngstown, serious (and reluctant) offender on the Mahoning River, will have to spend $5 million to clean up its mess. Suit filed against Youngstown under the old law was fought by the city on the ground that the old Ragan Act was repealed by implication when the 1951 law was enacted. Mahoning County Common Pleas Court supported this claim, but the attorney general may enter an appeal.

Reports on Morocco show odd contrast

Within the space of one month two congressional committees have issued reports on Moroccan air bases construction that are at considerable odds.

The Senate Armed Services Preparedness Subcommittee, headed by Sen. Lyndon Johnson of Texas, issued an interim report in late August (ENR Sept. 4, p. 71) which laid most of the responsibility for mistakes and waste at the door of the Corps of Engineers. The report was so critical of Gen. Lewis A. Pick, Chief of Army Engineers, that sentiment was stirred for his dismissal.

A month later the House Appropriations Subcommittee on Military Construction, headed by Rep. John J. Riley of South Carolina, issued its report (ENR Sept. 25, p. 19). It centered its criticism on the Air Force, the Department of Defense, and the Bureau of the Budget. As for the Corps, the committee concluded that "a substantial injustice has been done in making the Corps of Engineer officers the whipping boys of the operation."

For comparison, here are the major findings of the committees:

• **Senate Preparedness Committee**—

(1) Corps of Engineers completely failed to take timely and intelligent action to correct bad conditions that were reported by its own experts.

(2) The district engineer permitted departures from specifications on construction, despite warnings from Pusom, the architect-engineers.

(3) General Pick was not frank with the committee—gave it the impression that all was going well in Feb., 1952, when at that time a "serious condition existed."

(4) Both the Army and Corps of Engineers failed to give full cooperation to the committee.

(5) Considerable waste resulted from inability of Air Force to make up its mind as to the location of bases.

(6) Large-scale loafing, drunkenness, and failure to attend to duty was rampant throughout the initial stages.

(7) The contractor failed to provide adequate top management control coordination for a long period.

(8) The emergency status of program resulted in waste and mistakes.

(9) Delay in reaching agreements with the French resulted in delay, shifts in sites, and unnecessary expenditures.

• **House Appropriations (Riley Committee)**—(1) One of worst working conditions throughout entire job was the constant state of bankruptcy through which it had to proceed, due to the failure of the Department of Defense and the Bureau of the Budget to properly fund the moneys that Congress had appropriated.

(2) The Bureau of the Budget

maintained a double standard of funding—one to get money appropriated from Congress to be delivered into its hands for apportionment, another standard for the actual apportionment of construction funds.

(3) Lack of advance planning and timely decisions by the Air Force was a fundamental factor.

(4) Diplomatic deadlocks resulted in shift of bases and change in construction requirements that complicated the operation.

(5) Air Force kept the program on a "crash" or emergency basis longer than was justified with the result that engineering shortcuts were taken.

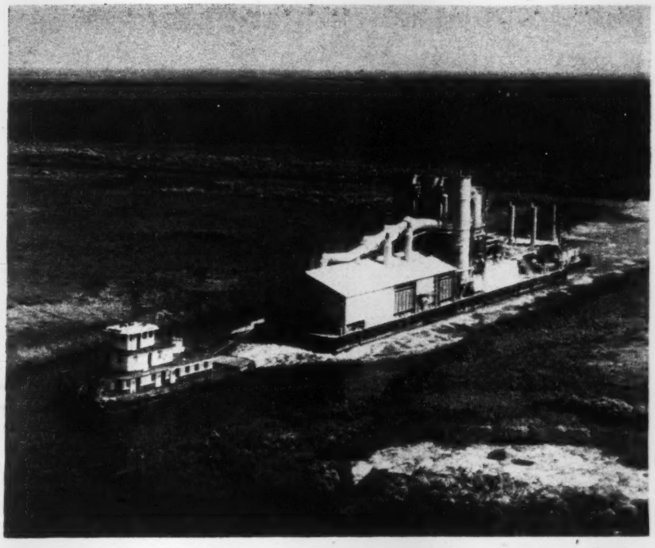
• **Modus operandi**—The question arises as to how two congressional groups, conducting almost simultaneous investigations, could arrive at such conflicting conclusions. Some light is provided by looking at the operating methods of the two groups.

The Johnson Committee operated in almost a carnival atmosphere, holding most of its hearings publicly, and attended by much publicity. Seldom did the accused face the accuser so that charges might be pinned down. In fact, two men whom the committee criticized so vigorously that they were relieved from their jobs, District Engineer Col. George T. Derby and his assistant, Lt. Col. L. L. Haseman, have yet to be called before the committee. Although the committee has not concluded its hearings, it issued an interim report that attracted widespread publicity.

The Riley Committee and its counsel, John J. Donnelly Jr., worked completely in closed hearings, issuing no interim reports or releases. It brought all groups involved—Air Force, Corps of Engineers, Bureau of the Budget, Pusom, and the Atlas Constructors—to the conference table at the same time where charges could be threshed out face-to-face and responsibility fixed. (See editorial page 160.)

• **Finis**—The conclusion of the Riley Committee is impressive:

"No other job in this committee's recollection has received the amount of adverse criticism or publicity which has been given to the Moroccan project. Some portions of the criticism have been justified. . . . These have been emphasized out of all proportion to their extent. The tremendous amount of good work done has been largely ignored. . . . During the period that the job had been labeled a fiasco a tremendous amount of satisfactory runway, taxiway, apron, and other paving work had been placed . . . unquestionably the result of a great deal of forceful drive, know-how, and leadership.



Sulphur plant makes voyage

At 6 a.m. last Tuesday, the world's first amphibious mining plant was positioned over a Louisiana marshland sulphur deposit. It had made a 65-mi journey by water from Grand Ecaille, where it was built by Freeport Sulphur Co., to the mine site at Bay Ste. Elaine in less than 54 hours.

For Freeport Sulphur, a big gamble was reaching the showdown. Company engineers have worked for eight years on design and construction of this pioneer plant (see photo above). Its cost: $2 million. On the success of its operation depends much of Freeport's future planning.

Grand Ecaille, 55-mi south of New Orleans, is Freeport's largest mine. Last year it turned out a record 1,272,000 long tons of sulphur, but when Freeport undertook development of Grand Ecaille 20 years ago, a consulting engineer had called it "impossible."

The Bay Ste. Elaine development is another major pioneering effort. The floating plant, built atop a 200-ft by 40-ft steel barge, was moved to its mine site at Bay Ste. Elaine, 70-mi southwest of New Orleans through shallow marshland and bayou water. As it moved into the prepared location at the mine site, workmen anchored the plant to pile clusters to secure it against storms and high winds. Water, steam, air and sulphur lines were connected to outlying wells.

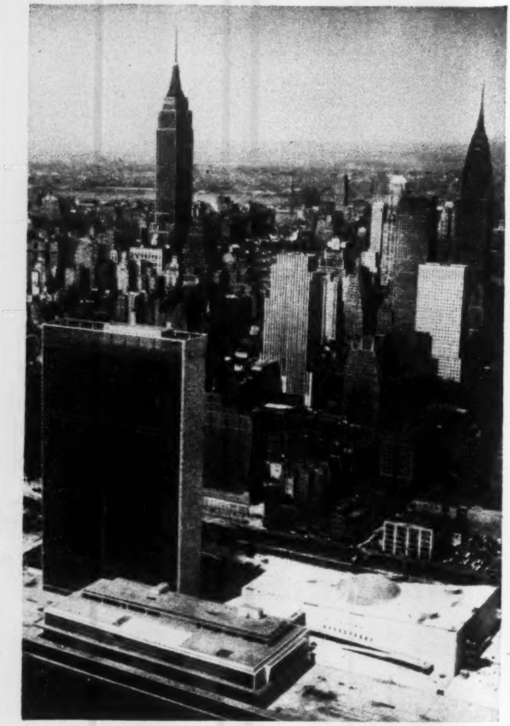
The site had been prepared for the plant by subcharging the bottom muck with earth fill. After a settling period, the fill was topped with sand until the water depth was about six feet. When the plant was in position, water was let into the barge's hold, settling it onto the sand fill.

Production is expected to be under way by the end of this month. It is hoped Bay Ste. Elaine will produce 175,000 tons of sulphur annually. The plant can be relocated as necessary.

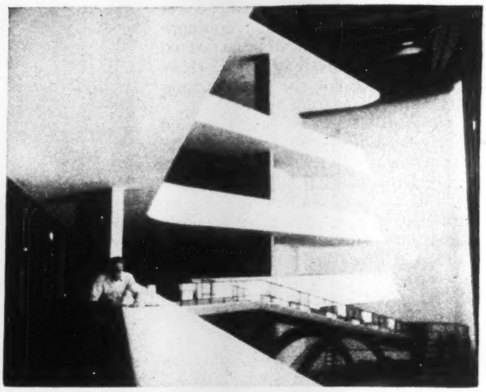
• **Broad horizons**—Bay Ste. Elaine is the smaller of two mines Freeport is developing in southeast Louisiana. The other is at Garden Island Bay near the mouth of the Mississippi River, where a $10-million to $15-million mining plant having a production goal of 500,000 long tons of sulphur a year is under construction. Unlike Bay Ste. Elaine, the Garden Island mine plant will rest on piles and its fresh water will be readily taken from the nearby river.

In the past, sulphur mining methods have required large amounts of fresh water but the mining process at Bay Ste. Elaine is based on use of brackish or sea water. The plant will pump nearly 2,000,000 gal of this water, superheated to 325 F, every 24 hours into the deposit for the purpose of melting the sulphur. Molten sulphur will be transported in insulated barges to Port Sulphur which is located on the Mississippi.

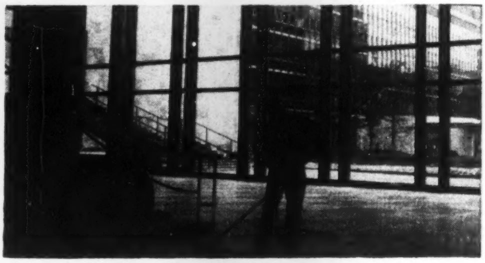
Outstanding feature of the new plant is its control of corrosion problems, which heretofore made use of salt water impractical.



DOMED GENERAL ASSEMBLY Building (at right) takes its place with slender Secretariat and adjoining Conference Building.



CANTILEVERED RAMPS leading to main meeting hall are feature of new building. Note exposed steel arch, ceiling, columns.



GETTING READY FOR OPENING DAY, workman sweeps near delegates' moving stairs. Secretariat is seen through window.

United Nations delegates to inaugurate General Assembly building next week

Tuesday, Oct. 14, will mark the first plenary session of United Nations delegates to be held in their permanent New York City meeting hall—the recently completed General Assembly Building. This structure now takes its place with the other principal buildings that make up permanent UN Headquarters: The Secretariat, the Conference Building, a large underground garage, and a Library Building. Only landscaping of the site remains to be completed.

The main architectural feature of the General Assembly Building is a large theater-like room with accommodations for the delegates, a press section, a public gallery, and booths for interpreters and broadcasting. It is 170 ft long, 130 ft wide, and measures 70 ft from the floor to the high point of a dome over the podium. Each delegate's seat is provided with a set of earphones and a switch whereby any one of five languages (English, French, Russian, Chinese and Spanish) may be selected and heard simultaneously while the speaker is addressing the meeting.

On the floor below there are other large rooms; the basement contains part of the parking garage. On the upper floors may be found the lounge rooms, offices and miscellaneous utility rooms.

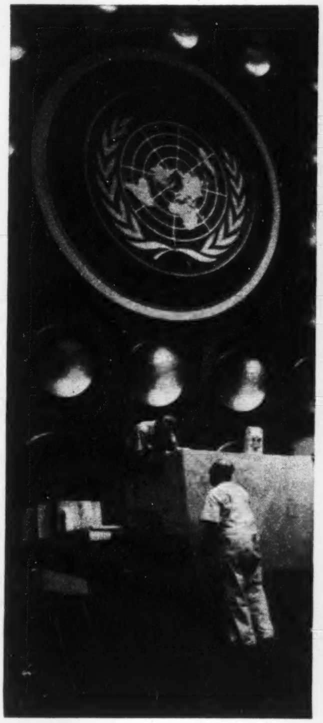
• Curved walls—In plan, the steel-framed building is 160x380 ft. The long walls (east and west) are concave and are of English limestone and marble, unbroken by door or window openings. The north wall, 71 ft high and 216 ft wide, is of glass as is the south wall, which sets back 28 ft from the building line.

The roof dips from the north wall to the center of the building and then slopes up again to the south end where it cantilevers to the building line. Transversely, the roof curves from the center to the sides, resulting in a complicated warped surface.

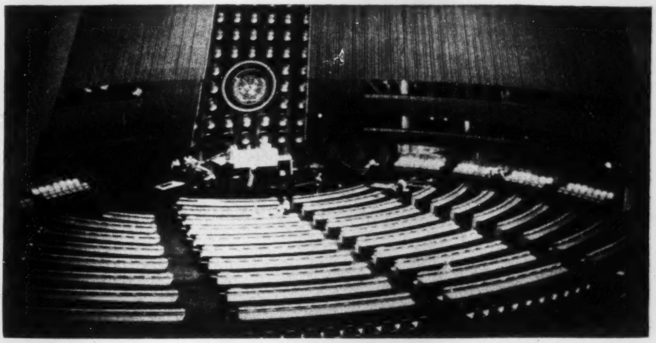
The dominant structural feature of the building is the cantilever. Stair landings, booths, roof and balconies are of this type construction. But its most striking, and most difficult, application is in the support of the previously mentioned dome over the main hall.

• Tilting dome—Composed of 24 curved steel ribs thrusting outward against a tension ring, the dome is 98 ft in diameter at the base. A relatively short supporting cone is 104 ft in diameter at its base. The axes of both dome and cone are tilted at 5 deg with the vertical, one reason being to obtain greater height over the speaker's platform. Principal supporting members form a rectangular pattern, roughly 112x134 ft. From this frame, cantilever members, each of a different length, extend out to and support the base of the cone.

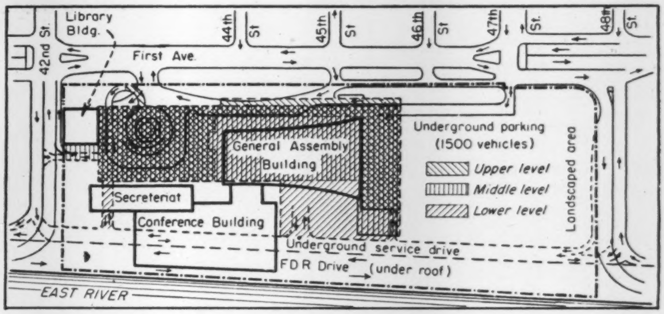
Design and erection of the dome and cone were exceedingly complex, as can be deduced from the above. A detailed description will be given in a full-length feature article to appear in a future issue of ENGINEERING NEWS-RECORD.



PODIUM in main hall receives last-minute adjustments.



MAIN HALL where plenary sessions will be held was extraordinary electrical job. Every seat is equipped with earphones and switch that can tune in five languages.



SITE PLAN indicates magnitude of underground garage which can accommodate 1.500 automobiles. Vehicular tunnel below First Avenue is under construction.

Completion of the General Assembly Building comes 5½ years after John D. Rockefeller donated $8½ million for purchase of the greater part of the 18-acre site bounded by E. 42d and E. 48th streets in the north-south direction, and First Ave. and Franklin D. Roosevelt Drive in the other direction. A total of $67.5 million has been expended thus far by the U. N. If site improvements undertaken by State and City of New York are considered, the figure approaches $100 million.

• Underground garage—The first building to go up was the Secretariat (ENR Dec. 29, 1949, p. 20) followed by the south half of the underground garage. The latter, framed in reinforced concrete, consists of three levels below ground. Its roof supports a roadway, 4 ft of earth fill (for landscaping), and a live load of 300 psf. The north half, of structural steel, is located under and was completed coincidently with the General Assembly Building. The entire garage can accommodate 1,500 vehicles.

After the concrete portion of the garage came the Conference Building, in plan 200x500 ft and 100 ft from basement to roof. Six conference rooms, all of 84-ft width, occupy two two-story-high floors. Over the upper floor are indoor and outdoor restaurants and kitchens. Below the lower conference room floor are work rooms, printing shops, and storage rooms. The east wall cantilevers 25 ft out over Roosevelt Drive.

An interesting design problem was posed by the fact that columns in the relatively high Secretariat building carry adjacent bay members in the relatively low Conference Building. To avoid transmission of wind reactions, all connecting bay members were supported on steel castings riveted to the Secretariat column flanges. Two nests of rollers, one in an east-west and one in a north-south direction, were inserted in these castings and support the beams at floor levels. On a windy day these connections groan a little, but they function quite satisfactorily.

The Library Building was already on the site when it was purchased, in the form of an office building for the New York City Housing Authority. Only a minimum of conversion was necessary. However, extensive alterations may be undertaken in the future to harmonize it better with the new buildings.

• Site improvements—About $32.5 million is being spent by the state and city on general improvements around the UN site. FDR Drive was relocated to accommodate the easterly portion of the Conference Building. On the west, First Avenue is being widened and a vehicular tunnel is under construction in the right-of-way. To the south, 42d Street is being widened and a new tunnel is replacing its old approach tunnel. And to the north, the approach on 47th Street has been widened by tearing down an entire block front of houses between First and Second Avenues.

Madigan-Hyland of New York City were the consulting engineers for the General Assembly Building, represented by Emil Praeger. Architects were Harrison & Abramowitz. American Bridge Co. had the steel contract. General contractor is the combine of Fuller-Turner-Walsh-Slattery. James Dawson, of the United Nations Planning Division, was the representative for that organization.

Dam harnesses the Roanoke

The first of 11 dams in the Roanoke River flood control-hydroelectric system was formally dedicated Oct. 3.

Biggest of the 11, the new dam is the John H. Kerr Dam and Reservoir, located at Buggs Island, Va., and built by the Corps of Engineers, United States Army, for $87 million (ENR Aug. 25, 1949, p. 26; Oct. 6, 1949, p. 30; Sept. 28, 1950, p. 40). Work is in progress on the second of the 11, Philpott Dam, near Bassett, Va., and the others are in various styles of planning.

Although planned primarily as a flood control measure, Kerr Dam, more familiarly known as Buggs Island Dam, will have an electrical generating capacity of 410 million kwh average yearly output.

The dam is named for former Rep. John H. Kerr, of North Carolina, a leader in action to improve flood control on the Roanoke River.

In accordance with a congressional directive of 1927, the Corps of Engineers that year initiated a thorough study of the Roanoke River and its tributaries as a preliminary step to regulating the wide fluctations of flow in the stream.

Floods periodically had plagued the Roanoke valley, particularly the portion below Buggs Island, which lies mostly in North Carolina. In 1934 the engineers submitted a comprehensive plan, providing for flood control, power, irrigation and navigation, including a dam at Buggs Island. No funds were provided for construction, however.

A flood in 1940, which reached a maximum flow of 270,000 cfs and did $5,000,000 in damage, emphasized the need for action, and Congress in 1944, after receiving a review report of the situation submitted by the Corps of Engineers, authorized the beginning of the work.

• **Structure**—Buggs Island Dam consists of a concrete section 2,785 ft long flanked by earth dikes for an overall distance of 22,285 ft.

The dam is built on rock, the lowest point in the river bed being 188 ft above sea level. From this point the dam rises 144 ft to a crest elevation of 332 ft.

Flow over the 1,092-ft spillway will be controlled by 22 tainter gates, each 42 ft wide and 32 ft high. These gates have a top elevation of 320 ft. Twelve ft of freeboard are provided in the dike-section for protection against waves and super floods.

At the foot of the spillway a concrete bucket section will deflect overflow water upward to dissipate its energy and to prevent erosion of the dam's foundation. Concrete training walls with a top elevation of 235 ft above sea level will direct the flow of discharged water.

Six sluices in the spillway section are 10-ft high by 5 ft 8 in.

• **Power unit**—The project will have a total capacity of 204,000 kw. There are seven turbines. Six penstocks have a diameter of 24 ft and one a diameter of 15 ft 6 in.

The turbines are of the vertical-shaft Frances type and correspond in size to the penstocks to which they are connected.

The Virginia Electric and Power Co. has contracted with the federal government to take two-thirds of the power produced at Kerr. This power will be transmitted as far away as Langley Air Base, Va.

The reservoir will have a length of 39 miles, a shoreline of 800 miles, and an area at full flood control level of 83,200 acres, with average of 48,900 acres. Maximum water storage capacity is 2,808,000 acre-ft, water storage for power is 1,046,000 acre-ft and water storage for flood control, 1,278,000 acre-ft.

The dam can reduce the record flood flow of 270,000 cfs to 60,000 cfs. Contrariwise, the stored water can be released in such a manner as to eliminate a condition such as that which occurred in September, 1932, when drought had cut the average flow to 467 cfs.

Major contractors

J. A. Jones Construction Co., Charles H. Tompkins Co., Wright Contracting Co., construction of dam and substructure of powerhouse, $13,363,275; Donovan Construction Co., Lovering Construction Co., M. J. Boyle and Co., construction of powerhouse and switch yard, $4,157,969; Westinghouse Electric Corp., furnishing three 35,555 kva and one 13,333 kva ac generators, $2,935,462;

Ralph E. Mills and Gorman Brothers, furnishing concrete aggregate filter material, riprap bedding and railroad ballast, $2,527,241; Newport News Shipbuilding and Dry Dock Co., furnishing three 45,000 hp hydraulic turbines, $1,748,765; Codell Construction Co., relocation of Southern Railway from Jeffress, Va., to Clarksville, Va., $1,408,004.

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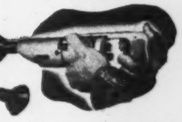
Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver and close.



Then press loaded Stud Driver firmly against work surface, depress safety lever, and pull trigger. Explosive charge imbeds stud solidly.

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Long service demonstrates the durability and economy of CONCRETE ROADS

The 1927 photo was taken the year Houston, Tex. paved Clinton Drive. There were 23,000,000 vehicles in the U. S. that year, 3,000,000 of them trucks.

By 1952 there were 52,000,000 vehicles, more than 9,000,000 of them trucks. The increase in weights and volumes is typified by the 1952 photo of Clinton Drive, now also part of U. S. 90.

When this and thousands of miles of other concrete roads were built no one foresaw such traffic growth. Yet these roads have borne the increasing traffic load with minimum maintenance. They paid for themselves long ago. Many are past their life expectancies *when designed for 1927 traffic* yet are in good condition, carrying 1952 loads. Some are resurfaced but the original concrete still constitutes the structurally-sound, load-carrying base.

The Clinton Drives all over America prove concrete's durability and economy. Concrete was a wise investment in 1927. It is an even sounder investment today because of improvements in engineering design, materials and construction methods.

Rigid concrete is moderate in first cost yet can be designed accurately for any axle load—and will *keep* its load-carrying capacity for life. Official state highway department records show that concrete costs the least to maintain. Latest data from studies published by the Highway Research Board show concrete has the longest life. Moderate first cost + low maintenance cost ÷ long life = ***low annual cost.***

For information on designing and building durable, ***low-annual-cost*** concrete roads write for free literature. Distributed only in the U. S. and Canada.

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A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Violence may bring on probe of St. Louis labor practices

This is the story of a bad situation—one which has worried legitimate labor union leaders all over the country. It is a story in which neither building trades labor nor the local contractors of St. Louis can find any room for pride.

The story's roots are old and ugly. Last year five contracting firms pulled out of the $18-million Chain-of-Rocks Canal Locks job (ENR Aug. 30, 1951, p. 24); the reason they gave—"fantastic" labor practices in the St. Louis area meant that any bidder there has to figure at least 50% of his cost for labor. Again last year, in the same area, bids on Scott Airbase were 50% over the engineer's estimates and blame fell again on the labor situation (ENR Sept. 27, 1951, p. 25).

This is not the story of building trades unions generally, or the story of contractors generally. It is a special case, and here are the facts.

Three unsolved killings this year in the two St. Louis, Mo., locals of the AFL Building Laborers and Hodcarriers Union have led to demands for a Federal Grand Jury investigation into reports of widespread labor racketeering in the construction industry in the St. Louis area.

Two of the victims were business agents of Local 110. They were: (1) Joseph F. Gribler, shot to death Aug. 26 in a downtown loading dock area; George Myers, shot to death in his automobile March 13; (2) Glenn (Cocky) Hager, a member of Local 42, shot to death July 20.

• Putting on the lug—Last year, the St. Louis Post-Dispatch said it had been informed that Paul Hulahan, business agent of Local 42, had demanded a pay-off of more than $50,000 from the developer of the $50-million Glasgow Village community housing project in north St. Louis County.

The developer, M. H. Carpenter, was said to have refused flatly, despite intimations that this would mean a series of jurisdictional disputes between the laborers and other crafts.

Carpenter refused to confirm or deny the story. Hulahan issued a general denial.

• Portrait of a business agent—Paul Hulahan was first suspended by the international union in 1941, after he and three other union officers were indicted for embezzlement.

Hulahan and the three other officers turned back to the union $186,000 found in their checking accounts, safe deposit boxes and in their homes.

The charge against Hulahan was nolle prossed in 1946 for insufficient evidence. Of the other three, one was convicted and sentenced to three years imprisonment, and the other two were acquitted.

Hulahan was ousted as business agent by the international for the second time after its investigation of the alleged shakedown and because of reports that he had violated terms of probation which he was serving.

He was reinstated last March to full union membership on the request of 850 union members who signed petitions in his behalf. Hulahan since has regained his position as business agent.

• Violence—St. Louis police have been told that Gribler was present when Hulahan made his unsuccessful payoff demand. Gribler is said to have apologized afterward to Carpenter and to have denied that he was a party to the extortion attempt.

After Myers, the other business agent, was killed, Gribler told police: "If I get any publicity on this, I'll be dead before morning." Hulahan was arrested for questioning in the death of Gribler.

Jurisdictional dispute

A jurisdictional dispute apparently got out of the hands of the Joint Board for the Settlement of Jurisdictional Disputes and resulted in a strike of 28,000 AFL building mechanics in Cleveland, Ohio, this week.

The work stoppage, "a holiday," was called by the AFL Cleveland Building Trades Council against the 10,000-member AFL carpenters union. The strike affected Cleveland and two neighboring counties.

Two disputes are involved in the strike.

One with the AFL glaziers, involves the carpenter's claim to all work on metal doors and their frames. The other involves the AFL laborers, and concerns the setting and stripping of metal pans for concrete floors.

The carpenters did not go out on strike.

Another person arrested in the investigation of Gribler's death was John J. Vitale, former convict and alleged agent of the Chicago Capone syndicate. Witnesses told of seeing the two men together 10 minutes before Gribler was shot, and an automobile similar to Vitale's two-tone Buick sedan was reported to have sped from the scene of the shooting.

Coincidentally, Hager was shot to death a week after an altercation in the Local 42 office between himself and "Red" Vitale, a cousin of John Vitale. Hager was a voluble supporter of Hulahan against "Red" Vitale for the post of business agent. Hulahan was later elected.

• Labor rackets—The currently reported labor racketeering in the construction industry in the St. Louis area follows this pattern:

- Threats of work stoppage and slowdowns.
- Refusal to furnish capable workers to contractors who don't "play ball."
- Assignment of incompetent workers to out-of-favor contractors.
- Heavy-handed control of the membership of the union through favoritism in job assignments and threats of personal violence of objectors.

A likely prey is a contractor who has a completion date fast approaching. The contractor frequently must make the first move in a payoff. Word reaches him, second or third hand, on what he must do to make the job progress smoothly.

One quasi-legal stratagem reportedly employed in several crafts involves dummy or captive companies controlled by a labor boss. He lets it be known that his company, ostensibly independent, can take over a troublesome job and get an adequate labor supply to finish it promptly.

• Contractors—A number of St. Louis area general contractors who have been questioned about the situation have denied any knowledge of racketeering in the industry.

Contractors from other cities who bid successfully on jobs in St. Louis are considered a different matter, however. One St. Louis contractor, although denying he ever had been approached for a payoff, declared bitterly that outsiders deserved any difficulties in which they found themselves.

Unions to demand productivity wage

If productivity—the so-called "Annual Improvement Factor"—becomes the basis for a national wage formula under wage controls, it will multiply compensation problems and augment inflation, according to a research monograph recently issued by Fisher, Rudge & Neblett, Inc., management consultants of New York and Los Angeles. Issued at a time when the Wage Stabilization Board is considering such a policy, the study points out that reliable statistics on actual productivity trends are lacking for most industries, and that the few that are available show wide variations.

"Advocates of a national wage policy based on productivity increases disregard these fluctuations," said Fred Rudge, one of the writers of the study entitled "Productivity as a Factor in Wage Determination."

He added, "Pressure for such a formula stems primarily from the unions. The CIO maintains that all workers should have their increases tied to a national productivity index regardless of the actual growth of their own particular industry or employer. It says that all workers contribute to increased output, which it claims is at the rate of 4% per year.

"The AFL maintains that the national increase in productivity should be the minimum wage boost for all. It also advocates a 'catch-up' productivity wage adjustment of 11% based on its estimate of a 5.9% increase in 1950 and 5.4% increase in 1951.

"Both union groups say that the reason for linking wage increases to productivity is to assure workers that their standard of living will improve as the nation's economy continues to expand."

• Management position—Management accepts the latter premise, Rudge went on, but resists "a formula which would ignore the impact of varying economic forces and legislate a rate of growth, whether or not it is present."

Management also says, he added, that without the use of such a formula, average hourly earnings rose 723% from 1890 to 1951, according to the BLS index, while output per man-hour increased 351%. Moreover, such earnings exclude employee benefits, such as shorter hours, vacations, pensions and other wage supplements which are paid for out of increased productivity.

"Another management point," Rudge declared, "is that wage levels are determined by a variety of factors, such as business activity, price levels, government wage fixing and community wage patterns. A national productivity formula, they say, would exclude the use of such factors and inhibit collective bargaining.

"They also hold that increased productivity is primarily the result of new capital investment; better management utilization of plant and equipment; inflationary and cyclical trends; research, invention, and salesmanship.

"Management also maintains that others, beside labor, should profit from increased productivity, and some benefit should be passed along to consumers as lower prices or improved quality."

Taxes are also a factor, Rudge added, because the government depends on rising productivity to offset increases in the national debt. He estimated that the cost of mutual aid programs alone, excluding foreign rearmament, exceeds the total national increment in productivity—assuming the latter is still meeting its traditional rate of 2-3%.

• Poor records—Contrary to wide assumption, there is no official government productivity index, the study advises, nor is there any other which has been universally accepted as an accurate measure of productivity changes. The BLS kept fragmentary records from 1890 to World War II, when they were suspended. Since 1945, BLS has kept precise records on 2,600 representative companies in a score of industries, but these exclude most of the major fields.

Union claims are based, the report discloses, on a privately published index developed by John W. Kendrick of the Department of Commerce—"The only one," the report declares, "which portrays a national trend supporting union contention that productivity is entitled to become a determinant in establishing wage policies." Even the author of the Kendrick index, Rudge pointed out, has said that its main purpose is to chart only broad national trends, and that its usefulness cannot be extended beyond that scope.

Regardless of arguments which are leveled against it, Rudge said that he and his associates believe that "productivity as a wage determinant is here to stay, and that management should explore the consequences and develop techniques and information for negotiating 'Annual Improvement Factor' demands, whenever unions present this demand.

"Management is not at present prepared to do this," he concluded.

Passive pickets

These few pickets, like others at each road entering Levittown, Pa., are the only remaining reminder of violence that flared in May over the homebuilder's use of non-union labor.

A court injunction quelled the trouble and limited the picketing (ENR May 29, p. 28).

Levitt & Sons' spokesmen claim that the picketing has no apparent adverse effect on their ability to sell houses at a rate of 30 closings a day.

Strongest reminder of how bad the labor troubles were before they were ended by the court ruling is this sign, hung prominently in the local bar: NO POLITICAL OR UNION TALK!

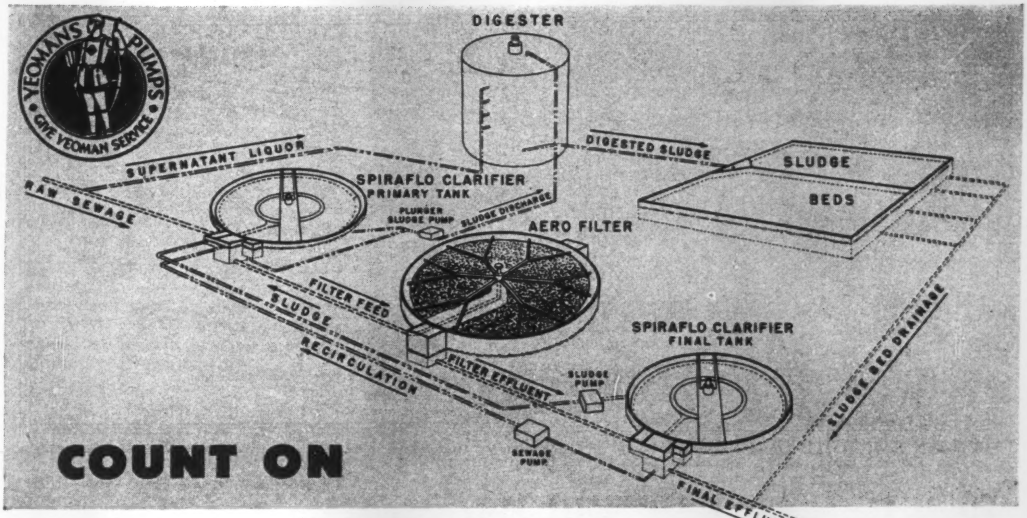
Three-week work stoppage ends at Letterkenny Depot

About 600 workers were scheduled to return to their jobs last week on construction projects costing $6 million at the Letterkenny Ordnance Depot, operated by the Army near Chambersburg, Pa.

A labor dispute had suspended work since Sept. 9 on a base shop and two warehouses. A union spokesman blamed the work stoppage on refusal of union men to work with non-union employees. He said private contractors had refused to sign agreements to employ only union members.

Contractor E. D. Plummer, one of the contractors involved, said his company hired workers without regard to their union status.

Terms of the settlement under which the men agreed to pick up their tools were not disclosed but W. E. W. Butler, vice-chairman of the AFL Board of Construction Crafts of Central Pennsylvania, said the U. S. Army Engineer Corps, asked the men to return to work because of the world situation.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Additional operations reports and bulletins containing complete details and helpful engineering data will be sent on request.

	Sewage Flow M.G.D.	Raw Sewage		Primary Effluent				Final Effluent				Overall Plant Reduction	
		Sus. Solids PPM	B.O.D. PPM	Sus. Solids PPM	Per Cent Reduction	B.O.D. PPM	Per Cent Reduction	Solids PPM	Per Cent Reduction	B.O.D. PPM	Per Cent Reduction	Sus. Solids Per Cent	B.O.D. Per Cent
6–15	0.2996	210	255	79	62.4	136	46.6	28	64.6	18	86.8	86.6	93.0
6–16	0.2467	425	260	85	80.0	127	51.2	23	73.0	19	85.1	94.6	92.6
6–17	0.2554	410	235	124	69.7	141	40.0	28	77.4	18	87.3	93.3	92.4
6–18	0.2487	308	222	76	75.4	108	51.4	34	55.3	16	85.2	89.0	92.8
6–19	0.1753	222	218	64	71.2	132	39.5	17	73.5	—	—	92.4	—
6–20	0.2666	262	320	88	66.4	147	54.1	20	77.3	30	79.6	92.4	90.6
6–21	0.2279	240	215	78	67.5	138	35.8	19	75.7	20	85.7	92.0	90.7
Average	0.2456	297	247	85	70.5	132	45.5	24	71.0	20	85.0	91.5	92.0

* Name of plant on request.

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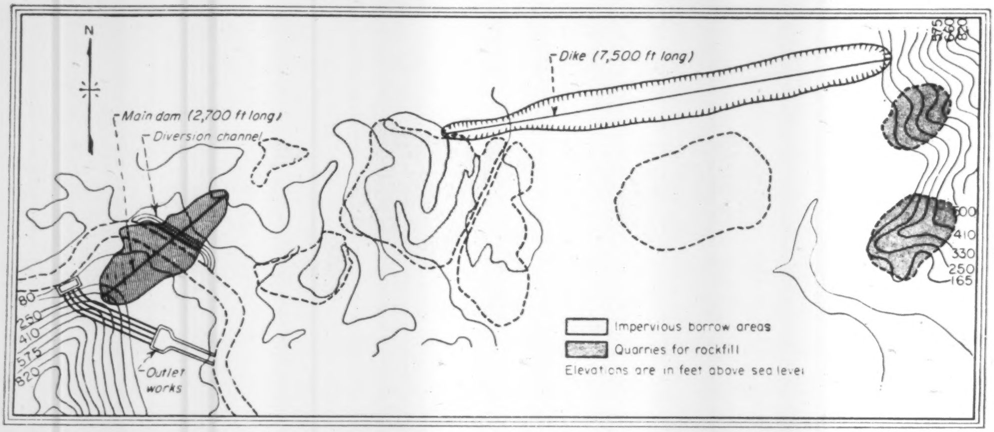


MEXICAN EARTHFILL DAM will check floods on Tonto River. Impervious material is plentiful, but placing it is a problem.

Building an earthfill dam in the tropics

Wet-weather earthfill dam construction practices were tested to an extreme last summer when unusually heavy floods occurred in Mexico's Papaloapan Valley, where Presidente Aleman Dam is nearing completion.

Being built as the first major structure in a comprehensive "TVA" plan for the tropical watershed, Aleman Dam is primarily for flood control. Other purposes include power generation, navigation improvement and auxiliary irrigation for 375,000 acres. Bids have just been received on four 31,500-kw power generation units.

• **Two embankments**—Principal parts of the present construction are: A four-conduit low outlet; a 2,700-ft main earthfill dam of 200-ft maximum height; and a 7,500-ft dike. A 160,000-cfs spillway near the far end of the dike will be built later, after the project's major embankments are complete. For the time being the dam, with its outlet works, is considered able to handle the largest floods without overtopping.

Aleman Dam is on the Tonto River, a major Papaloapan tributary. Area of the whole watershed is 18,000 sq mi. Earlier work in the watershed included the initiation of a channel-clearing program, to increase the river's flood-carrying capacity, and dikes along portions of the left bank, where there are settlements.

In preparation for Aleman Dam work, the contractor built a 15-mile road through swamp and jungle to connect the damsite with a railroad station. Extensive sanitation measures were taken to protect employees from tropical diseases. The construction camp has housed as many as 3,000.

• **Floods not harmful**—Work began in the latter part of 1950, with completion scheduled for July, 1953. The completion date estimate was not affected by 1952 summer floods, which were the greatest in several decades, according to José Bertrán Cusine, president of Constructora El Aguila, the contractor. Work was halted temporarily, but dewatering and cleanup revealed little actual damage.

Protecting earthwork already in place is a major problem on Aleman Dam construction. Only two months, March and April, are relatively dry. Rainfall in the other months brings the mean annual rainfall to 85 in. Rains occur more frequently than twice daily during a five-month period.

Not only does the rainfall affect work in place; it also affects borrow pits, haul roads and placement of additional materials on work in place.

Impervious-fill placement is more dependent on rain conditions, of course. It's possible to place pervious material whenever haul roads will support the equipment.

• **Dry days wanted**—The contractors concentrate on impervious-section work in the dry months, but because the 6,100,000 cu yd of impervious material is almost 60% of total fill volume in dam and dike, it must be placed during every dry period during the rest of the year. Stretching those periods to their utmost has been the objective of construction-procedure refinements.

Success of these refinements—impervious-fill progress during semi-wet months is about half that of the two dry months—may seem limited, but without them material could not be placed at all.

Sheepsfoot rollers quickly were rejected for compaction because it would take as much as four days, after a rain, for the embankment to dry enough to take more dirt. Smooth-wheel rollers, making 12 passes on 6-in. loose layers of clay material, get the specified 95% compaction when moisture is within 3% of optimum.

By rolling fresh material at least twice before rainstorms begin, a tight surface is established—one that dries out quickly (in as little as three hours) with light spike-tooth harrowing after the rain.

Slopes of 5 to 8% are maintained on the impervious-material surface—either parallel to the embankment's centerline or normal to it. Similar protection practices are followed in impervious-borrow pits. In fact, it is the pit drying time that is critical in getting filling operations under way again after a rain. (Material must dry to proper moisture content before it can be hauled out of the pit).

• **Haulage problems**—Haul roads have been expensive to maintain because the soil, outside of riverbed gravel deposits, is heavy mucky loam over red clay. It has been necessary to lay a heavy rock base 2 or 3 ft thick, topped by 3 to 5 in. of wet-rolled river gravel. In much of the haulage road system this structure sank out of sight after two rainy seasons and had to be replaced. However, with such care, efficient haulage has been continuous throughout the wettest weather.

An idea of the traffic on these roads is given by the yardages they handle. In months of maximum demand for impervious materials (dry season) 400,000 cu yd must be moved. When the emphasis is on rockfill (wet months) 270,000 cu yd is moved. Haulage equipment includes: 30 165-hp two-wheel units for powering 14 13½-cu yd scrapers and 18 rock wagons of similar capacity; 14 crawler-mounted wagons; 27 bulldozers of various makes and sizes; 60 dump trucks, 3 to 10 cu yd. There are 13 power shovels on the job, working in borrow pits and rock quarries.

• **Rock at site**–Rock fill is a good quality limestone, quarried at the site. It breaks with a high proportion of blocks near the capacity of 2½-yd shovels. About 10% of the material requires a secondary blasting.

This limestone formation underlies the damsite, being covered by a transitional clay-limestone mixture, an impervious red-clay formation, 35 to 50 ft thick, and a surface layer of organic material, of varying depth. The earthworks rest on clay formation, from which top-layer material has been stripped.

Design is conventional. In the dike and part of the dam there is a low concrete cut-off wall, an impervious zone with 2 on 3 side slopes, a thin transition zone and a rock blanket zone with 2 on 5 side slopes. The remainder of the dam has 4 on 3 slopes in the impervious and 1 on 2 slopes on the weighted zones. (The cut-off wall is continuous through this portion also). The high proportion of impervious material is due to the abundance of clayey soil at the site.

Initial diversion was accomplished with a channel cut in the river's left bank. Earth cofferdams, which later became heel and toe of half of the main dam, enclosed the initial work.

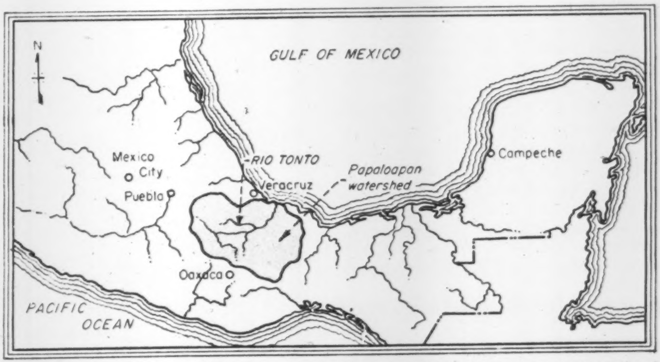
Final diversion will be through the four-conduit outlet works. These conduits are tunnels, each 1800 ft long and 18 ft finished diameter. A 100,000-kw hydroelectric plant will be built at its lower end.

Management – Presidente Aleman Dam is being built by the Federal Government, through the "Comision del Papaloapan" composed of Adolfo Orine Alba, Mexico's secretary of hydraulic resources; Luis Gonzalez Aparicio; and Jose Ramos Magana. Resident engineer is Salvador Mendieta A.

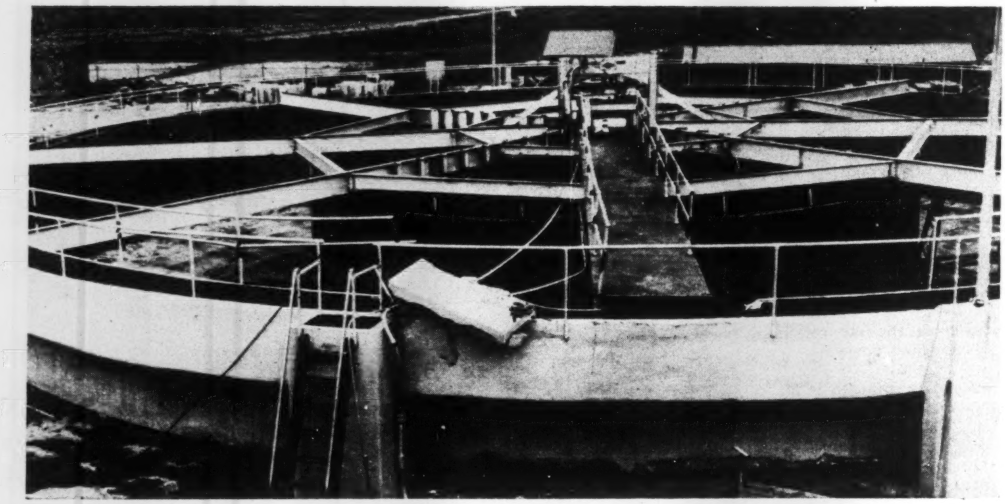
La Constructora El Aguila S.A., Mexico City, is the contractor. Jose Vicente Orozco is project manager.

DAM FOUNDATION is impervious clay. This view southward along main-dam center line shows partly stripped area in cut-off wall zone, before initial diversion was made.

SMOOTH ROLLERS, instead of sheepsfoot, compact dike's fill, presenting impervious surface to frequent rains. Afterwards, with light harrowing, earth dries quickly so filling can be resumed.



PAPALOAPAN WATERSHED covers 18,000 sq mi of coastal territory just south of Vera Cruz. Presidente Aleman Dam is on Rio Tonto, one of the Papaloapan's main tributaries.



DAMAGED TANK MECHANISM was lifted by fluid pressures on steel baffle. Radial framing shifted 9 ft along the tank wall (walkway formerly met stairs). The facility will be modified in repair and put back into service.

Quake-induced surge damages sewage tank

WHEN THE AFTERSHOCK of Tehachapi's earthquake hit Bakersfield, Calif., in August, there was damage to the city's old sewage treatment plant. But its new, million-dollar sewage works, just put in operation, proved to be quake-proof.

Damage at the old plant occurred in a dual purpose, flocculation-sedimentation tank. Apparently, wave action set up within the 100-ft dia tank by the quake lifted the steel baffle dividing the tank's two processes. Steel beams supporting mixing and scraping mechanisms were pulled from the tank's concrete wall and rotated some 9 ft along it. The lower drive unit was damaged, and four of six radial beams were badly distorted. No apparent damage was done to the tank itself, other than where the mechanism was torn loose.

At the new plant, only a couple of miles away, two 115-ft sedimentation tanks sustained no damage although filled with water at the time.

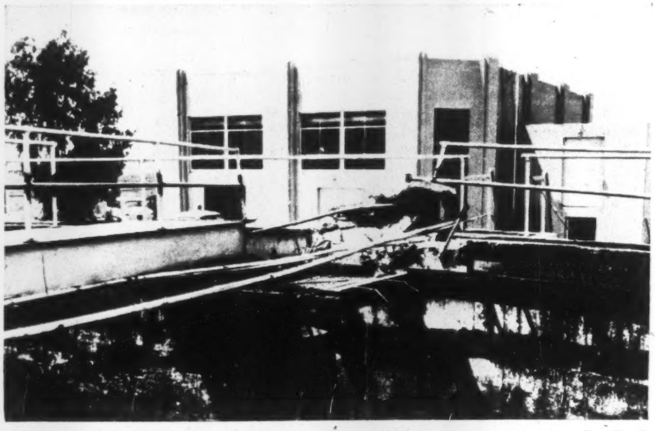
Fred G. Nelson, manager of The Dorr Company's western sanitary division, cites lack of damage to the new plant as proof that the 50-ft dia steel baffle caused trouble in the old tank.

Explaining what happened to the older equipment (a Dorr Clari-flocculator), Mr. Nelson describes it as a 100-ft dia tank with 10-ft swd, having a 50-ft dia, 9-ft 7-in. deep baffle. Its central mechanism is supported on a steel column and rests on two steel I-beams, spanning out to the tank's perimeter and covered with a checkered-plate walkway. These beams, together with six other radial steel members, carry the steel baffle.

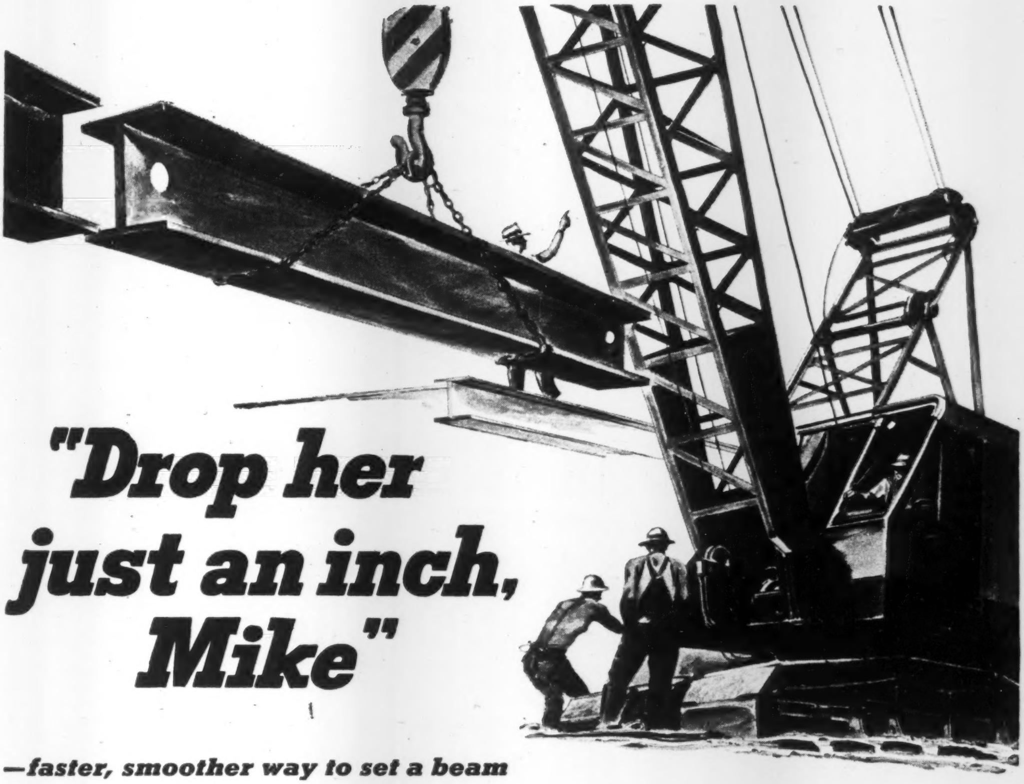
There are two drive units, one above the other. The upper one drives sludge collection arms in the annular sedimentation compartment; the lower drives flocculators within the baffle.

Repair will mean conversion of the tank to a simple clarifier. The baffle and the flocculation mechanism will be removed from the tank. The upper, sludge-collecting drive mechanism will be disassembled and reset, using two undamaged radial beams for lateral support. No new parts will be required.

Wonderly Construction Co. has completed the new Bakersfield plant, under supervision of Mr. Joe Hoefelder, city engineer. Its operation is to supplement that of the older, quake-damaged plant.



BROKEN CONCRETE occurred only where radial steel tore out of wall. Tank remained intact otherwise.



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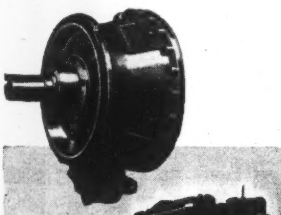

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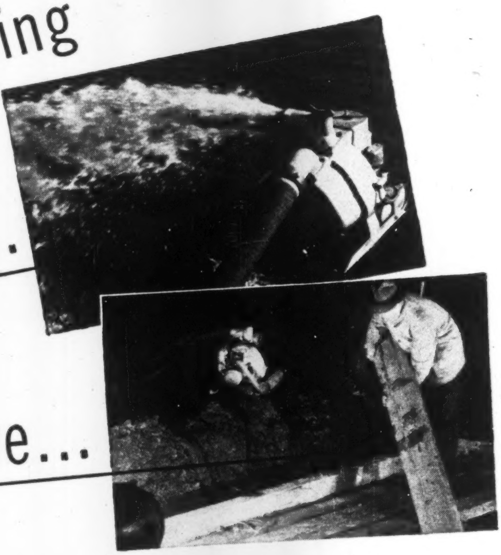

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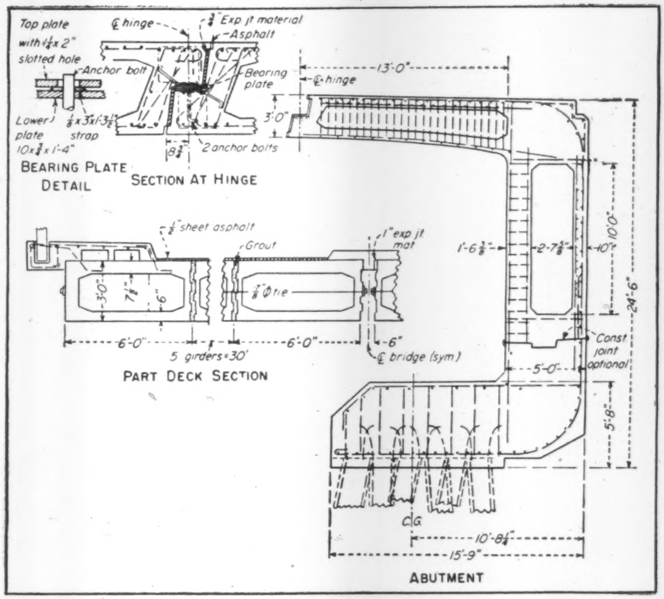

Top plate with $\frac{1}{4}$x 2" slotted hole
Anchor bolt
Lower plate 10x$\frac{3}{4}$x 1'-4"
$\frac{1}{8}$x 3"x 1'-3$\frac{1}{2}$" strap
BEARING PLATE DETAIL
℄ hinge
$\frac{3}{4}$" Exp jt material
Asphalt
Bearing plate
8$\frac{3}{4}$"
2 anchor bolts
SECTION AT HINGE
13'-0"
℄ hinge
3'-0"
$\frac{1}{2}$" sheet asphalt
Grout
3'-0"
7$\frac{1}{2}$"
6"
$\frac{7}{8}$" ϕ tie
1" exp jt mat
6'-0"
5 girders = 30'
6'-0"
6"
℄ bridge (sym)
PART DECK SECTION
1'-6$\frac{3}{8}$"
2-7$\frac{5}{8}$"
10"
10'-0"
24'-6"
Const joint optional
5'-0"
5'-8"
CG
10'-8$\frac{1}{4}$"
15'-9"
ABUTMENT

C-shaped abutments, hollow precast girders permit . . .

. . . Quick erection with two truck cranes of . . .

SHELF-TYPE HINGE joins girder to cantilever arm of abutment. Two anchor bolts through each bearing plate engage each girder.

Novel overpass structure

Two requirements governed the design of the newly completed six-lane Morena Boulevard highway overpass across the Mission Valley freeway in San Diego, Calif., least interference with traffic on the spanned freeway and avoidance of the use of scarce rolled steel shapes. They were met with neatness and novelty by a structure using 56-ft long precast hollow box girders supported by C-shaped cantilever abutments. Traffic on the spanned freeway was blocked only on off-peak hours and for only three days.

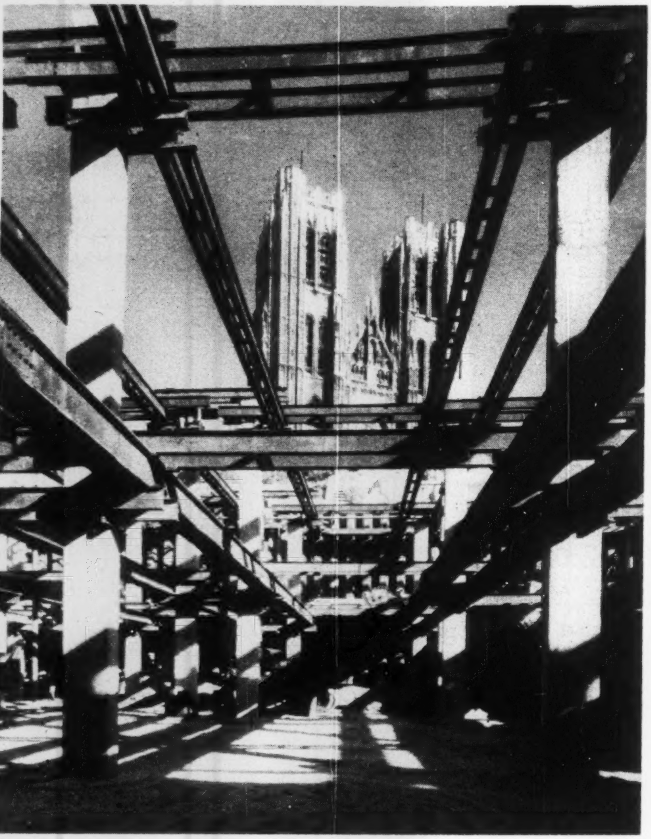
The abutments are supported on 70-ft long piles capped by 5-ft-8-in. thick footings. The hollow piers of the abutments are eccentric with the center of gravity of the pile foundation. But when the cantilever deck portions of the abutment were added forming a C-shaped section the assembly was in balance. The north abutment cantilever is 14½ ft long and the south abutment 13 ft long, so that the clear span of the overpass is 83½ ft.

The 14 precast girders, each six ft wide and three ft deep, were cast on a specially prepared slab a short distance from the overpass. This slab was shaped to fit the soffit of the girders. The 12 interior girders weigh 38 tons each and the two exterior units weigh 42 tons each.

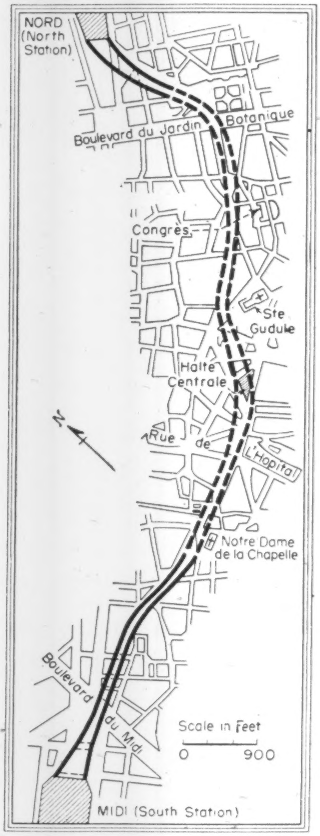
The girders were placed an inch apart on shelf-type hinges at the ends of the cantilevered abutments, grout then being pumped between to assure continuity of deck action. The hinge detail for each girder consists of a bearing plate and two projecting anchor bolts attached to the cantilever abutment, and a slotted bearing plate attached to girders, which engages the anchor bolts. The detail permits horizontal adjustment of the girders (to aid in the grouting) but no longitudinal movement.

H20-S16 design loading was used for the structure, with 1,000 psi allowable stress on the concrete. The overpass was designed to resist a seismic force of four per cent the dead load plus one-half of the live load. Concrete was required to pass a 3,000 psi 28-day test and grout a 4,000-psi test.

The structure was designed by the engineering department of the City of San Diego under the general direction of A. K. Fogg, city engineer. Structural design was supervised by Joseph H. Kershaw, structural engineer's office. The overpass was built by the M. H. Golden Construction Co. under a $196,575 contract.



STEEL FRAMING used to shore wide excavation for Brussels railroad tunnel was encased in concrete to become part of the final tunnel section.



ALIGNMENT of viaduct and tunnel through business section of the city.

Tunnel, viaducts join rail stations and transform central Brussels

G. N. Balbachevsky
Editor, L'Ossature Metallique
Brussels, Belgium

When the King of the Belgians on Oct. 4 officially opened the new two-mile, six-track rail line joining the Nord and Midi stations in Brussels he signalized the completion of a remarkable construction project and a long step forward in the transformation of the central business section of the city.

Actually begun forty years ago, and delayed by two world wars, the junction line, which will handle some 800 trains daily, is in tunnel and on viaduct. It changes the two dead-end stations into through stations, and thus effects a connection within the city of the north and south rail nets of the country. Equipped with three new stations, the line will bring commuters from the suburbs close to their offices and thus reduce street congestion. It will permit the construction of a new wide traffic artery on the roof of the tunnel, and the erection of modern buildings to replace the many old ones demolished to make way for the improvement. Several grade separation structures and large plazas have already been built to aid street traffic in the vicinity of the new line, and underground parking garages have been provided on an upper level of the railway tunnel. In all respects the Jonction Nord-Midi, as it is called, is a public works and city planning achievement of the greatest importance to the city and to the country at large.

• Novel tunnel construction—The construction of the tunnel along the side of a hill through unreliable soil (shifting sand) and across a big city confronted the engineers with an extremely difficult problem since the excavation had to be 55 ft deep and 115 ft wide. A novel cut-and-cover method which proved eminently successful was devised by the late E. Franchimont, former director general of the O.N.J. (Office National pour l'Achèvement de la Jonction Nord-Midi), the organization set up to handle the project. The method involved first the excavation of a 7-ft layer of soil across the width of the tunnel followed by the driving of steel sheetpiling along either side. These piles varied from 59 to 65½ ft in length. Ground water was lowered and kept under control by filtering wells.

Shafts were then sunk to 5 ft below the final tunnel floor level into which steel columns, designed to support the shoring, could be placed. As excavation work proceeded, the columns were connected at various levels by longitudinal and transverse girders. In this way, the resulting framework, in addition to acting as shoring, formed the skeleton for the reinforced concrete of the completed tunnel. The normal tunnel cross-section consists of three bays, each containing one pair of tracks. In addition there is incorporated a collector sewer that intercepts eighteen street sewers that cross the alignment.

Tunnel construction was carried out in five sections from south to north as follows:

(1) A 1,200-ft length from Notre Dame de la Chapelle to the Rue de l'Hopital (see map) which was completed before the war. Space between the tunnel roof and the surface is used as an underground garage.

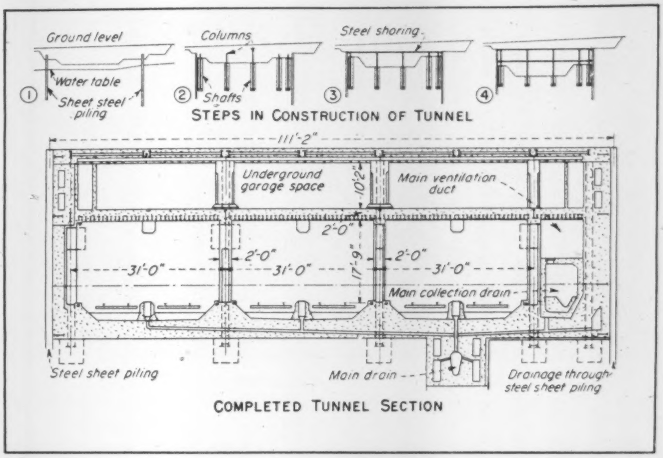
(2) A 1,500-ft section that includes the new central station (the Halte Centrale) where the tunnel widens to accommodate three island platforms. This section was completed during the war since the Germans had hopes of occupying it as a bomb shelter for some of their headquarters operations. Work, however, was slowed down enough so that they never were able to make use of it. After the liberation, the American Army used a part of the sub-basement of the Halte Centrale for a mess in which 5,000 meals were served daily.

(3) A 1650-ft section, interrupted in 1941 and completed in 1949, which includes the building of the National Bank of Belgium, whose front wall weighing about 20 tons per lineal ft had to be underpinned by concrete piles driven by means of hydraulic jacks.

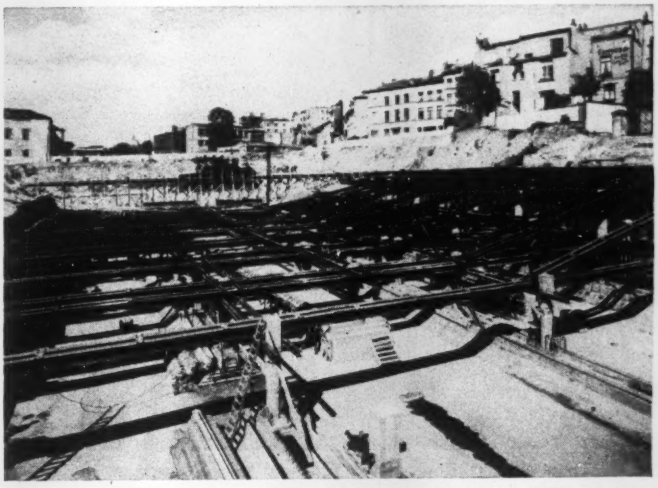
(4) A 1,320-ft length from the end of Section 3 to the Boulevard du Jardin Botanique completed in 1949.

(5) A 660-ft section linking up with the approach viaducts to the Nord Station. This comparatively shallow section was carried out between two curtains of sheetpiling, one of steel and the other of reinforced concrete. It was completed in 1949.

Materials required for the tunnel amount to 20,000 tons of steel sheet piling, 70,000 tons of steel sections and 650,000 cu yd of concrete. The volume of excavated earth totaled 1,300,000 cu yd.



TUNNEL of cut-and-cover type for new Brussels rail line was excavated in four steps. Shoring installed as excavation progressed became part of final framework.

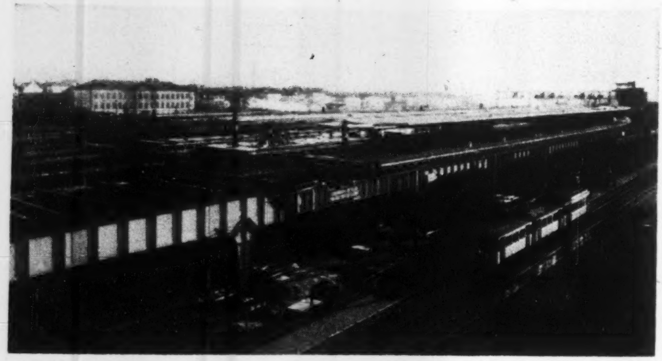


ONE OF THE SHORING TYPES required for the wide tunnel. Where cut was deeper two lines of horizontal framing were used. Columns were sunk in shafts prior to general excavation.

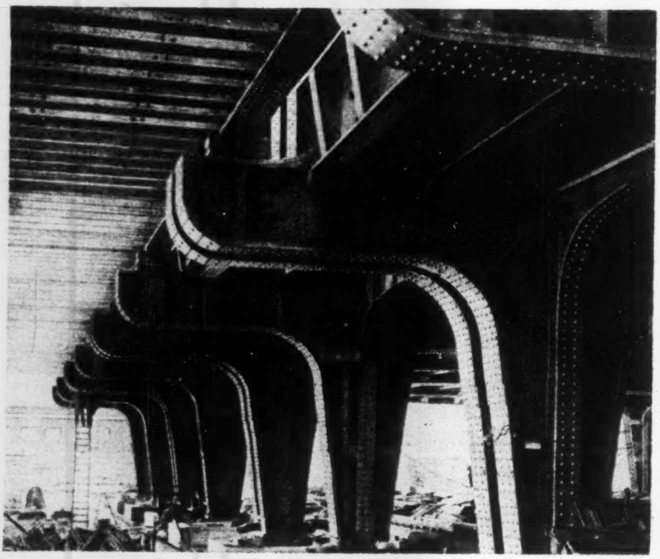
• **North and South viaducts**—The North Viaduct, 630 ft long, includes retaining walls and bridges over two streets, one of which is 169 ft long and 65 ft wide and the other 262 ft long and 131 ft wide. The bridges are connected by a structure which serves as a 2-story garage for cars. Both bridges and garage are constructed of wide-flange steel beams embedded in concrete.

The South Viaduct, 3,000 ft long, includes structures of various kinds: steel girder bridges, bridges of wide-flange beams encased in concrete, arch bridges in plain concrete, and tracks on filled ground between retaining walls. Among the various structures of the South Viaduct, two are worth mentioning:

The Boulevard du Midi bridge is a cantilever structure consisting of three 3-span parallel skew decks, 292 ft long by 82 ft wide. Completed before the



VIADUCT ENTRANCE to Midi Station uses riveted and welded spans. Suspended girders alternate with 59-ft rigid frames carrying 13 ft 9-in. cantilevers at either end.



MASSIVE STEELWORK was required to support the raised tracks in the reconstruction of the Midi Station. Columns are 69 ft apart, and cantilevers 12 ft long.

first World War, it was given no attention until work was resumed some 30 years later. Despite this long delay the steel was found to be in good condition even though it had not been painted.

The second structure, the Rue d'Argonne bridge, is composed of three sections severed by means of expansion joints. The structural system consists of wide-flange beams embedded in concrete, the beams resting on thin-shell-type abutments and intermediate columns. The columns in turn are wide-flange beams embedded in concrete and founded on Franki compressed piles. The area below the viaduct between the Rue d'Argonne and the new Midi Station will be used partly as a terminus for long-distance coaches.

• New stations—Construction of the new junction line naturally called for considerable modifications of existing railway installations. In particular, the raising of the rail levels, necessary to link up with the approach viaducts, required complete reconstruction of the Nord and Midi stations. The new Nord Station, in fact, is several hundred feet from the original building and at a 26-ft higher level. Access to the station hall is by ramps and a platform situated about 15 ft above street level. The station has 24 platforms of which 12 are to be used for through traffic.

The Midi Station, however, will be the more important because it is from there that passenger trains will be originated and dispatched. It, too, has 24 platforms, of which 18 are for through traffic. All have been rebuilt some 20 ft above the old track level.

As it was impossible to close either the Nord or Midi Stations during reconstruction, it was decided to proceed in stages, by reducing traffic by 10 percent and facilities and station plant by 25 percent. The necessity for keeping the stations in use decided the manner in which works were carried out, which briefly consisted of completing the reconstruction in longitudinal sections, of four-track width at the Nord Station and of six-track width at the Midi Station. The first stage of this method comprised the closing, demolition and clearing of a section 4 or 6 tracks wide, the building of a section of viaduct to the new level and the laying of tracks at that upper level. As soon as this section had been opened to traffic, the second section alongside at lower level was demolished and rebuilt in the same way and so on for the other sections until completion of the works.

The new Halte Centrale has three island platforms (one for each pair of tracks). The platforms are 26 ft wide and 984 ft long. The new station building rests partly on the tunnel structure and partly on Franki piles.

The other two suburban stations ("Chapelle" and "Congress") will have only two platforms, some 660 ft long. These platforms are in tunnel for the Congress Station, and in the open-air for the Chapelle Station.

• Those responsible – Verdeyen & Moenaert were selected as consulting engineers for the 1st, 3rd, 4th and 5th sections of the tunnel, while all structural calculations relative to the 2nd section (including the framework of the Halte Centrale) were handled by L. M. Chapeaux. The contractors were: Entreprises François S.A. for the 2nd, 3rd and 4th sections of the tunnel; Entreprises Van Rymenant S.A. for the 1st section; and Entreprises Gillion S.A. for the 5th section.

The building of the Halte Centrale was designed by Baron V. Horta and after his death by M. Brunfaut. The new station buildings are designed by A. & Y. Blomme and F. Petit for the Midi Station and by P. & J. Saintenoy and H. Hendrick-Van den Bosch for the Nord Station.

The National Junction Office (O.N.J.) which controlled the whole scheme, was managed by E. Franchimont and after his death by F. de la Court, chief engineer director.

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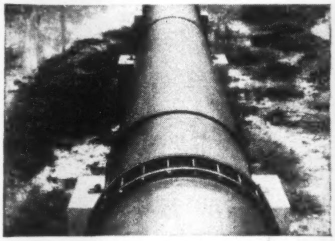

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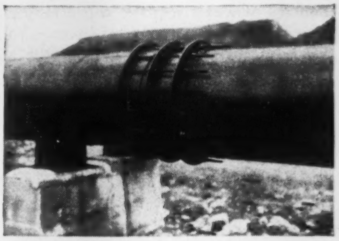

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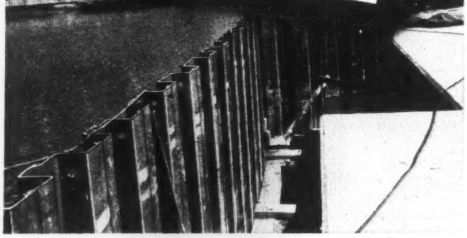

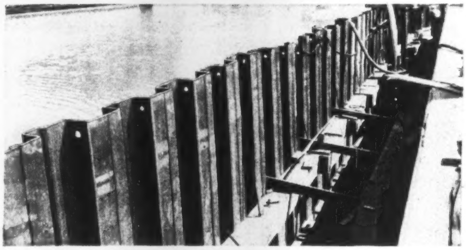

TOP: Foster Steel Sheet Piling used in the construction of the reinforced concrete bridge pier located on the west bank of the Chicago River.

RIGHT: Accurate driving was made possible with top quality steel-sheet piling (in the proper lengths and sections) —an exacting job kept seepage to a minimum.

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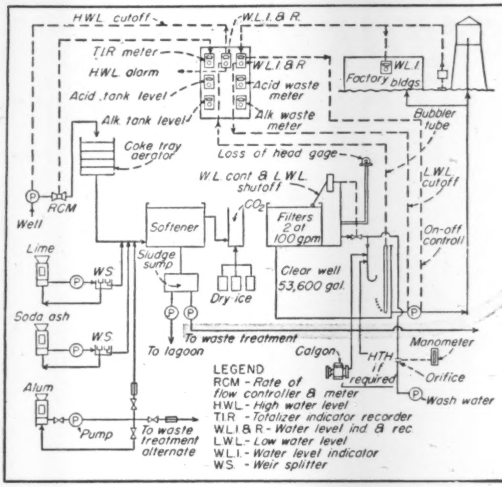
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P
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Lime
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Dry ice
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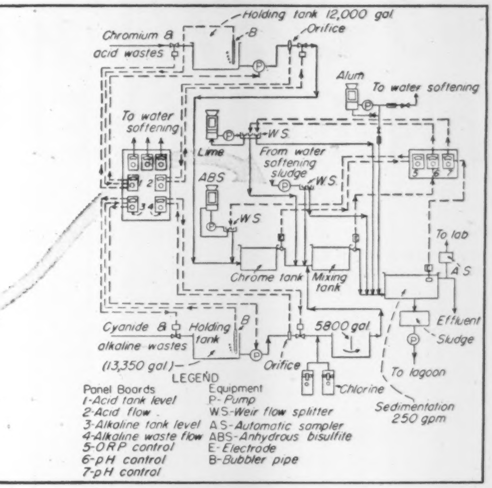
Soda ash
WS
To waste treatment
To lagoon
Calgon
Manometer
HTH if required
Orifice
Wash water
Alum
Pump
To waste treatment alternate
LEGEND
RCM - Rate of flow controller & meter
H.W.L. - High water level
T.I.R - Totalizer indicator recorder
W.L.I. & R. - Water level ind. & rec.
L.W.L. - Low water level
W.L.I. - Water level indicator
W.S. - Weir splitter

WATER TREATMENT of a hard well supply is tied by softener sludge reuse to . . .


Holding tank 12,000 gal
Chromium & acid wastes
B
Orifice
Alum
To water softening
To water softening
Lime
WS
From water softening sludge
WS
ABS
WS
2
3
4
5
6
7
To lab
AS
Chrome tank
Mixing tank
Effluent
Cyanide & alkaline wastes
Holding tank
(13,350 gal.)
B
5800 gal
Orifice
Sludge
To lagoon
Chlorine
Sedimentation 250 gpm
LEGEND
Panel Boards
1-Acid tank level
2-Acid flow
3-Alkaline tank level
4-Alkaline waste flow
5-ORP control
6-pH control
7-pH control
Equipment
P-Pump
WS-Weir flow splitter
AS-Automatic sampler
ABS-Anhydrous bisulfite
E-Electrode
B-Bubbler pipe

WASTE TREATMENT. The sludge comes in handy in raising pH of wastes.

Water-softener sludge put to work

SLUDGE from its water softener is used to treat metal plating wastes by Ranco, Inc.—maker of automobile heater controls—at its new Plain City, Ohio, plant. If necessary, lime will be added in the waste treatment process; but a sizable saving in lime is expected through use of the alkaline softener sludge in this closely controlled water and waste design.

Well water comes to the plant with 830-ppm total hardness, of which about half is non-carbonate hardness with some 80 ppm of magnesium.

Following coke tray aeration, to remove CO_2 and oxidize iron, the well water at 200 gpm is treated with lime, soda ash and alum as it passes to an upflow softening clarifier. Then it is recarbonated in a 260-cu ft chamber where CO_2 is added from dry ice. Finally it is filtered at 2 gpm per sq ft and chlorinated as it enters a storage reservoir.

• Waste treatment—Metal cleaning and plating operations include oil and dirt removal from stampings by washing with an alkaline cleaner; cleaning and acid dips in preparation for plating; and finally plating with copper, zinc and chromium. Copper and zinc plating solutions are of the cyanide type.

Substantially complete treatment is required for removal of toxic metals and cyanides, neutralization of acids and elimination of oils. Acid and chromium wastes are separated from alkaline and cyanide wastes. Two holding tanks collect these different wastes.

Chromium must be reduced from the hexavalent to the trivalent form before precipitation in alkaline solution. Therefore, the acid-chromium wastes leaving the holding tank are treated with a reducing agent, sodium metabisulfite. Chemical dosage is controlled by ORP (oxidation-reduction potential). Alkaline-cyanide wastes are next chlorinated to oxidize the cyanide, then pass to the mixing tank where the alkaline and acid wastes neutralize each other.

Alkaline sludge from the water softening plant is added to raise the pH to a point where the metals (copper, zinc, and chromium) will precipitate as the hydroxides. Lime is added, if necessary. Alum may be added to improve coagulation and sedimentation. Control of lime dosage is effected through weir flow splitters positioned pneumatically and automatically by pH recorder controllers.

Treated effluent goes to Darby Creek; settled sludge is pumped to a lagoon. The plant is designed to handle 100 gpm of each type of waste, acid-chromium and alkaline-cyanide.

• Process control vital—Instrumentation and chemical feed control will make possible the desired treatment of both water and wastes.

Rate of flow totalizer-indicator-recorder instruments are provided for the water supply and both the raw acid and alkaline wastes. Bubble type level indicators are provided for each of the raw waste holding tanks.

Dry chemical feeders are installed for water softening (lime and soda ash and alum) and for waste treatment (alum, lime, and sodium metabisulfite). Chemicals are fed to maintain a constant concentration of chemical in the slurry or solution leaving the feeder; the actual dosage is proportioned according to needs by a proportional weir flow splitter. This device splits the flow of chemical solution as it passes over a weir in proportions from 0 to 100%, with part of the flow going to treatment and part returned to the feeder solution chamber.

This proportional division of chemical solution is controlled either manually or pneumatically from either pH remote indicator-recorder-controller instruments or ORP remote indicator-recorder-controller instrument.

The complex layout is illustrated on accompanying flow diagrams for water softening and waste treatment. Builders-Providence, Inc., furnished the control equipment; Omega Machine Co., also of Providence, R. I., the chemical feed equipment.

Consulting engineers on design of the water and waste facilities for Ranco were Alden E. Stillson Associates, Columbus, Ohio. The water softening plant is in operation; the waste treatment process is still getting started.

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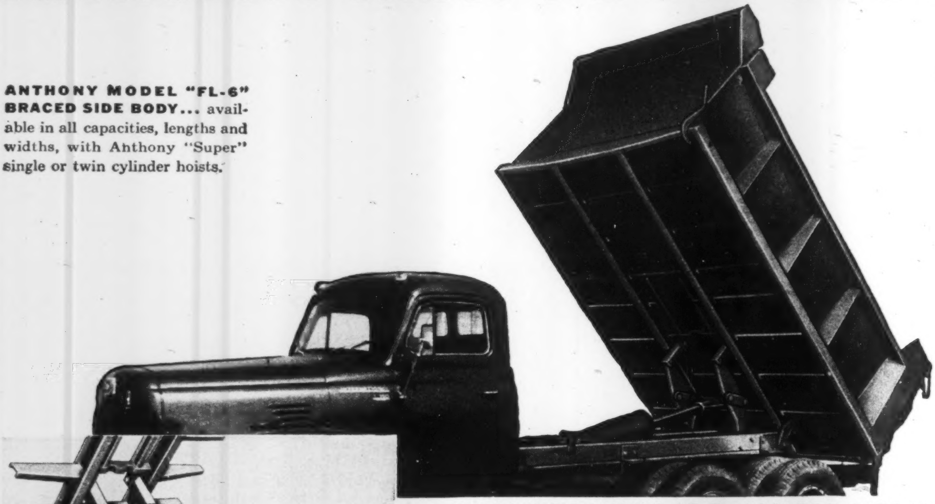

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THE ABC SYMBOL which is printed at the head of this page is, in a very real sense, *your* brand on this magazine. Those letters stand for Audit Bureau of Circulations. The symbol indicates that the magazine is a member and supporter of that Bureau.

To the advertiser who contemplates using the magazine as an advertising medium, this symbol has a well-recognized significance. It tells him that the circulation records and practices of the magazine are wide open to the auditors of the Bureau, who check the publisher's claims and make public the precise terms and conditions under which subscriptions are obtained. And it assures him that the magazine stays in business by virtue of a demonstrated demand from its readers as shown by their paid subscriptions or newsstand purchases.

BUT HERE we are concerned only with the significance of ABC to you as a reader. For when the advertisers, the advertising agencies, and the publishers founded the Bureau nearly forty years ago to help establish honest circulation figures, they unwittingly set up a cooperative institution that has become a major safeguard for the interests of the reading public.

That is because membership in ABC constitutes one of the strongest guarantees that any publication can offer of its primary devotion to the interests of its readers. And by making that guarantee possible, ABC becomes a major safeguard of the freedom of the press, an objective of exceptional importance in these days when the public is flooded with propaganda from so many sources.

THE SUREST MEANS by which to preserve a free press is to keep it directly answerable to the reading public it would serve. It follows, then, that the survival of a truly free press must depend on its acceptance by that public; and that means in turn that the people must have in their hands some adequate means for holding the publishers responsible to them.

No one has yet devised any means to that end more simple, more direct or more practical than the paid subscription or newsstand purchase price. The right to purchase or refrain from purchasing a publication gives to the readers and to no one else the power to pass judgment on whether that publication should continue to serve the reading public.

TO SUPERVISE this vital process, to check and certify the integrity of the publication's circulation methods and claims, requires a strict and continuing audit of each publication's success in meeting this test of its public acceptance. To that essential function the ABC has contributed mightily by the conscientious performance of its mission. And that is why we are able to have a press supported, for the most part, by advertising revenues, but not controlled as to its circulation or content by any influence other than its readers.

When an advertiser consults the ABC statement of a publication to ascertain the amount, the quality and the trend of its circulation, he does so in the legitimate pursuit of his own interest. But at the same time, inevitably, he is helping the ABC to keep the press responsible and responsive to the reading public. For, in effect, he is asking the publication to demonstrate through its circulation figures that it owes its standing to a voluntary demand by its readers.

SO THE Audit Bureau of Circulations, by auditing and certifying paid circulations, has come to perform a vital service to the readers of this magazine and of every other member publication. And in performing that service, it helps to maintain in our country a press that is answerable to the reading public and to it alone. So long as the practices and principles for which ABC stands continue to prevail in American publishing, we shall find in it a sure support for a truly free press, responsible only to the public it serves.

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BOOK REVIEWS

Law for constructors

Legal Guide For Contractors, Architects and Engineers—By I. Vernon Werbin, 374 pp., McGraw-Hill Publishing Co., 330 W. 42nd St., New York 36, N. Y. $4.75.

The author of this book is no stranger to the readers of Engineering News-Record. His summaries of legal decisions of interest to contractors and engineers have been a regular feature in the pages of ENR for several years. This book, like its forerunner "Legal Phases of Construction Contracts" is the result of long experience as a lawyer dealing chiefly with construction contracts. Mr. Werbin also is an engineer with practical experience in the field of contracting.

This new book is designed to supplement the earlier one. Like that text, it takes numerous legal questions that arise frequently in connection with construction and engineering work and summarizes the findings of important court decisions relating to each question.

Although the book is written in language that is as free as possible of legal jargon, it is not intended to be a substitute for advice from an experienced attorney. Rather, its purpose is to inform contractors or engineers and their legal advisors concerning court decisions covering the problem before them. To that end, footnotes give the origin of all cases cited in the text so that lawyers using the book can locate the complete court decisions.

Buildings vs bombs

A Simple Method for Evaluating Blast Effects on Buildings—51 pp. A report by Armour Research Foundation, Illinois Institute of Technology, 35 W. 33rd St., Chicago 16, Ill.

Windowless Structures—A Study in Blast-Resistant Design — Federal Civil Defense Administration Technical Manual. 164 pp. Superintendent of Documents, Washington 25, D. C. $1.

These two booklets have a common objective—to present a rational procedure for designing buildings to resist an atomic explosion. But the Armour Research Foundation report goes a step farther than the manual of the Federal Civil Defense Administration. Prepared for the Air Materiel Command of the U. S. Air Force at Wright-Patterson Air Force Base, the ARF report offers a method that cuts down the amount of calculations required considerably.

The problem of designing against atomic blast is much different in many ways from those encountered in conventional structural design. First, the nature of the loading is such that dynamic loading must be assumed; equivalent static loads would yield erroneous results. Secondly, neither the magnitude nor duration of the loading is known, since both the size of the bomb and the distance from the explosion are unknown. Thirdly, the resistance of a building to sudden lateral force is difficult to predict. Nevertheless, the authors of both pamphlets make a fine effort to utilize existing data to overcome these handicaps.

The procedure described in the ARF report involves the following steps:

1. A mathematical model, consisting of a mass and a spring, is chosen to represent the action of the real structure.
2. The variation of the horizontal blast force with time is established.
3. The resistance of the building frame to lateral distortion is calculated and the mass of the moving parts of the structure determined.
4. A solution is obtained of the equations that describe the distortion of the frame as a function of the properties of the impinging blast wave and of the structural characteristics of the building. This solution is presented in graphical form for a wide range of typical conditions. The desired maximum deflection of the frame, which is assumed to be the criterion of damage, is obtained directly and without further calculation from the graphical solution of the equations of motion.

The method presented in the FCDA manual follows the same general procedure but goes into greater detail. FCDA points out that the publication should be of particular interest to architects and engineers because many structures can be made blast-resistant in whole or in part by the addition of relatively inexpensive design features based on the following principles:

1. Structures with integrally connected basements well anchored to the ground are more resistant to sliding and overturning than structures having shallow foundations.
2. Reinforced concrete bearing walls and reinforced concrete partitions rigidly connected to roof and floor increase resistance of the structure to an atomic blast.
3. The general stiffness of the building can be increased at very small expense by connections between stiffening walls and the floor and roof, such as corner fillets.
4. Reinforced concrete corridor walls (without glass windows) create a space of relative safety from blast and flying debris.
5. Hung ceilings, plaster, cornices, parapets and other elements that can become detached when subjected to blast conditions are extremely hazardous and should be eliminated.

The FCDA manual supplements information given in the following earlier publications, which also may be obtained from the Superintendent of Documents: "The Effects of Atomic Weapons," by the Atomic Energy Commission, $1.25; "Damage from Atomic Explosion and Design of Protective Structures," by the National Security Resources Board, $0.15; and "Interim Guide for the Design of Buildings Exposed to Atomic Blast," by the Federal Civil Defense Administration, $0.15.

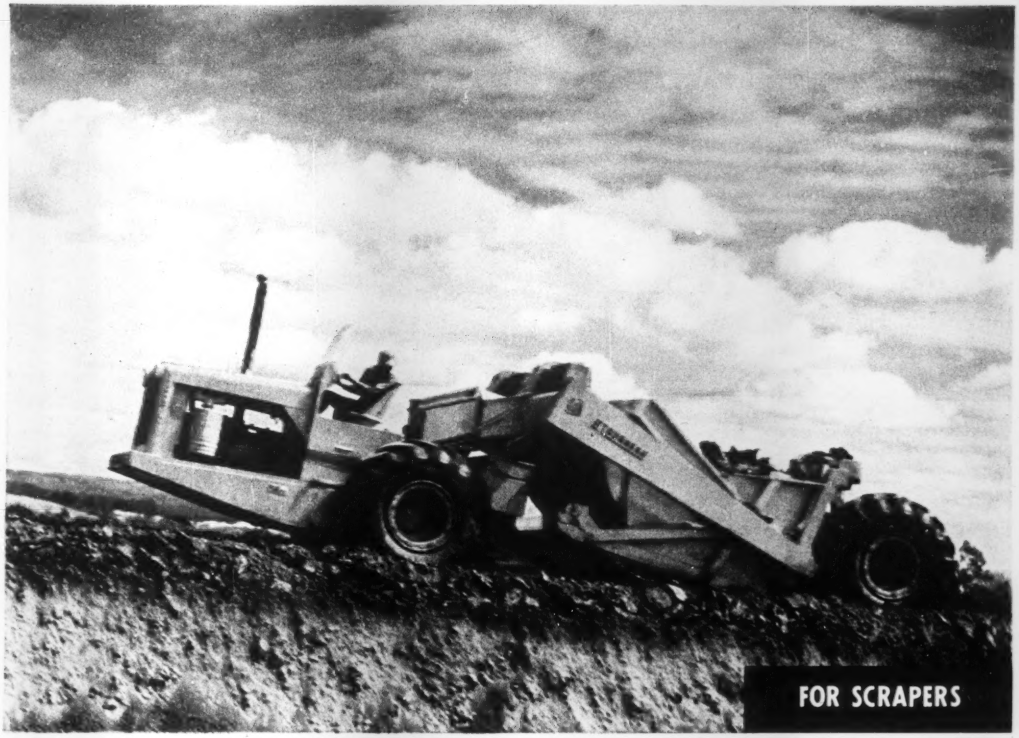
Visual aids for statistics

Charting Statistics—By Mary Eleanor Spear. 253 pp. McGraw-Hill Book Co., 330 West 42nd St., New York 36, N. Y., $4.50.

As more and more statistics record and measure what is happening in our complex affairs, charts and other visual aids become an even increasing boom. This book is an excellent rudimentary treatment of how to use charts, how to construct them, what type to use for what purpose, what to avoid, how to enlarge and color them for displays to accompany speeches, how to illustrate TV programs or inform conferences. Animated displays are covered briefly.

In addition to offering fundamental principles for designing and selecting the charts to be used, the author covers drafting techniques and such commercial aids as are available to speed chart production. Simplicity is the keynote.

While the material illustrated is all economic or social, the basic principles can be applied equally well to simple needs of visual aids for presenting engineering data. The book does not, however, cover three dimensional effects in charts or the more complex charts comparing several series of trend data.



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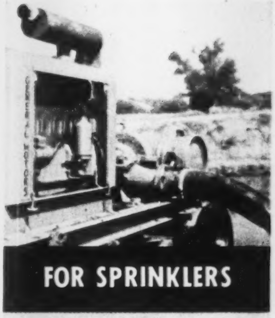

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Huge Glenn L. Martin Company Building AA at Plant #2, Middle River, Md.

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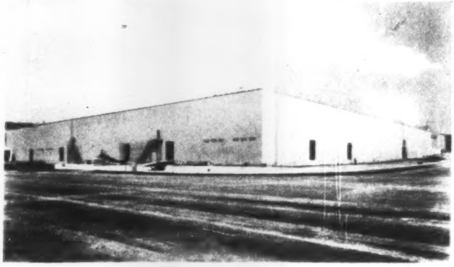
Concrete Contractor: **S. D. MOSES COMPANY,** Washington, D. C.
Superstructure
General Contractors: **REDDING & COMPANY, INC.,** and
JAMES STEWART & CO., INC., Baltimore, Md.
Concrete Contractor: **BOLLINGER-LELAND COMPANY INC.,** Baltimore, Md.
Engineers: **WHITMAN, REQUARDT & ASSOCIATES,** Baltimore, Md.

Pouring the first floor slab of the new addition. The 510,000 sq. ft. of floor area required approximately 15,000 cu. yds. of concrete.



Nearly completed 1952 Extension to the Glenn L. Martin Company Building AA at Plant #2.

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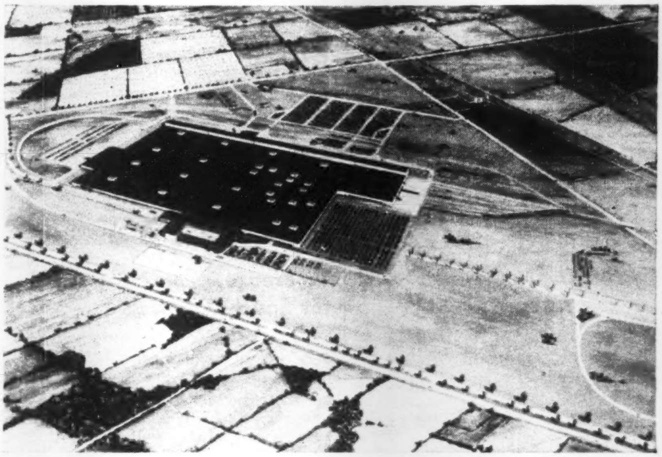

PLANT LAYOUT indicates many access roads to site. The "blocks" on top of the buildings are all ventilator penthouses.

Ford builds plant in Toronto suburb

What will be the largest factory area under one roof outside the U. S. is now under construction at Oakville, Ont., a suburb of Toronto, and will serve as an auto assembly plant for Ford Motor Co. of Canada, Ltd. The new building will have 32½ acres of floor space, or 1,400,000 sq. ft. To cost about $17 million, it will be completed by the summer of 1953.

The plant is framed in structural steel and is enclosed by masonry curtain walls and a concrete roof.

Ford is building its own pumping equipment on the Lake Ontario shore to supply up to 3 mgd of unfiltered water for plant needs. Treated water for the factory will be supplied by the municipality. The company is working with the Ontario Department of Highways in planning a system of feeder roads from existing county roads so that traffic will enter the site from many different directions.

Location of the huge 420-acre site in a suburban-rural area has brought numerous town-planning problems. The plant's 5,000 employees will require new housing and water supply, sewerage, and roads.

The new Oakville plant is the result of a decision by Ford to move its main assembly plant from Windsor, Ont., to be closer to its main market, Toronto and surrounding communities. The Windsor plant is being turned into an engine producing factory, at a cost of about $6½ million.

Anglin-Norcross Ont. Ltd., Toronto, is general contractor for the factory and adjacent site improvement W. S. Fullerton Construction Co., Windsor, has a contract for laying 24-in. cast iron water main and 60-in. storm sewers from Lake Ontario to the factory, a distance of 8,000 ft. Spencer, White & Prentis of Canada Ltd., Toronto, is placing about 2,800 ft. of 36-in. steel pipe in the bottom of Lake Ontario, below lake shipping. Brennan-King Construction Co., Hamilton, Ont., is the earth moving contractor.

Consulting engineers are Giffels & Vallet of Canada Ltd., Windsor, for the structure, and Gore & Storrie, Toronto, for water supply and sewage.

Work to start on Canada's National Capital Plan

With the abandonment on Sept. 28 by the Canadian National Railways of eight miles of its Renfrew line in Ottawa, Ont., the first actual step has been taken in the ambitious plan to remake Canada's capital city (ENR March 8, 1951, p. 54).

The first construction work will begin this fall with the removal of the C.N.R. tracks. Eight grade crossings will be eliminated. The old right-of-way will become a modern highway.

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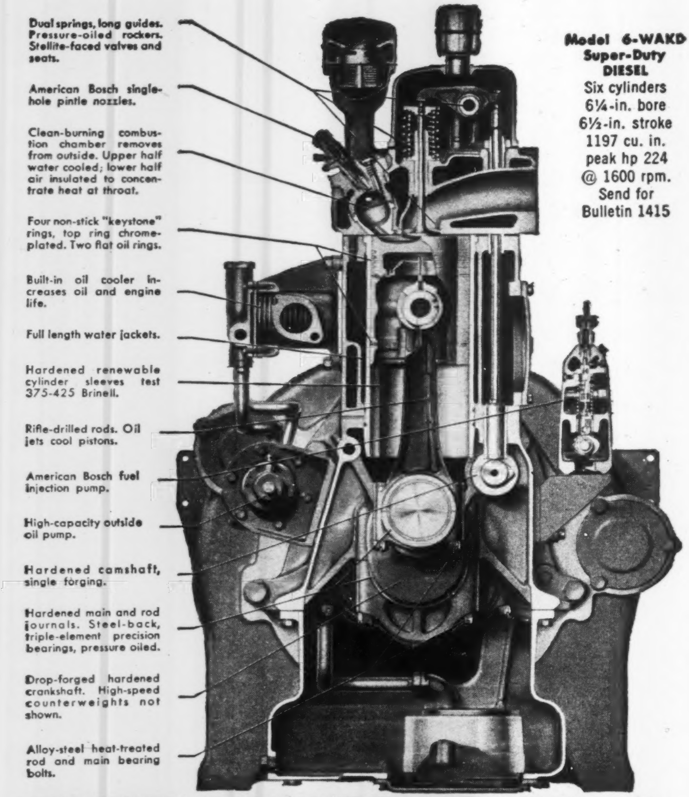
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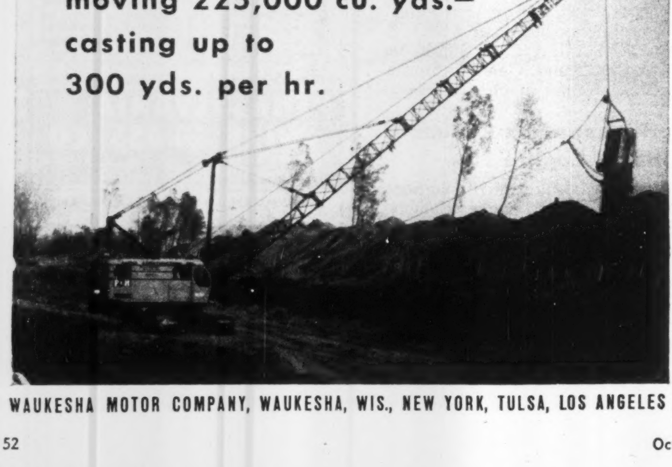

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To create research lab for South America

Jack J. Hinman, Jr., sanitary engineer consultant of the Institute of Inter-American Affairs, has just wound up a summer in Brazil where he laid ground work for a research laboratory to serve as model for all South America.

Commenting on the facility planned for the state of Sao Paulo, Hinman said:

"The University of Sao Paulo is so advantageously located and is so well equipped, near to excellent demonstration water and sewage plants and provided with able personnel, that it seems an ideal place to install the proposed laboratory facilities for advanced instruction of sanitary engineers from all South America—and probably from other countries in tropical areas."

It will be a training center in food and milk sanitation, insect and rodent control, plumbing, water supply and purification. Professor Hinman now assumes his post of visiting professor of sanitary engineering at the University of North Carolina, Chapel Hill,

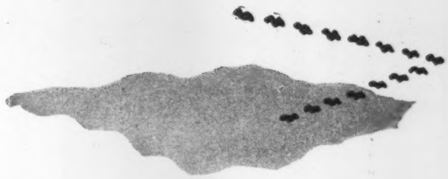
Hinman, an engineer colonel, has been working on water supply and purification since his first job in the Indiana State Board of Health as a high school boy. During World War I, he served as water supply officer in the American Expeditionary Forces in England, Ireland and France.

Hinman went to Tokyo in charge of all water supply in Japan for the American Eighth Army. He remained in Japan until September, 1948, as Chief of Utilities of the 8th Army.

Past president of the American Water Works Association, he received the AWWA 1952 Fuller award for his contributions to water supply work.

A native of Indiana, Colonel Hinman has taught at the State University of Iowa, from which he received his degrees in civil engineering.

(*International continued on page 56*)



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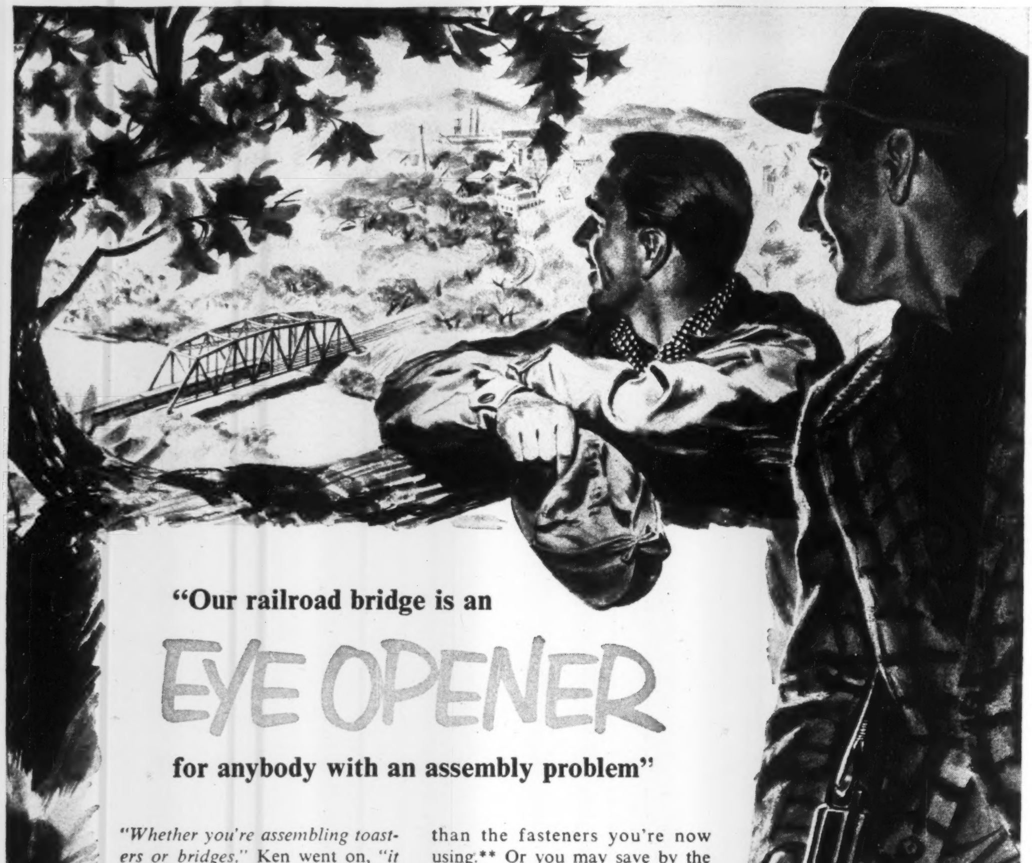

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"Whether you're assembling toasters or bridges," Ken went on, *"it pays to set your sights on fasteners."*

"Fasteners?" asked Jack.

"Right!" affirmed Ken. *"We've saved plenty by taking the RB&W man's advice to switch from rivets to high strength RB&W bolts in assembling high stressed structural joints.*

"These bolts stay tight and that saves us maintenance. They assemble faster, and that saves us labor and construction time."

There's a cost-cutting lesson for you in this story, whatever your industry.* So look to your fasteners for an often overlooked opportunity to reduce costs, and strengthen your competitive position. New inventions, like RB&W's SPIN-LOCK Screw, may prove more efficient than the fasteners you're now using.** Or you may save by the stepped-up production you get from using the finest fasteners... RB&W bolts, nuts, rivets and screws of uniform accuracy, dependability and physical properties.

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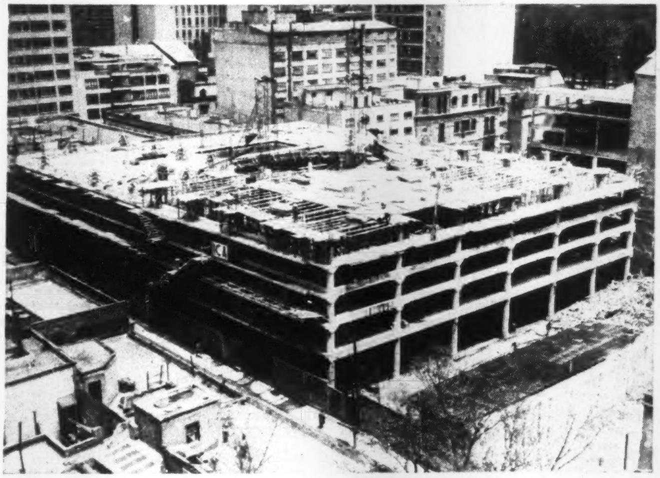

MEXICAN PARKING GARAGE—Four new parking garages in downtown Mexico City are now in construction and will probably be completed this year. The largest of these, a six-story building shown above is being completed just off Alameda Park in the heart of the city. It is being built for the Cia. America de Seguros by the Ingenieros Constructores Asociados Co. of Mexico. Notable for the circular ramp in the center, it is expected to house more than 1,200 cars at any one time.

Mexico constructs many public works

Mexico is continuing to push its public works in keeping with the steady advance of the national economy. Latest developments include the following:

• **New school construction**—During the 6-year term of President Miguel Aleman the federal government has built 531 schools, containing 2,758 class rooms. Altogether in that period $32 million has been spent on school construction and repair, not including the $17 million expended on the new campus of the University of Mexico.

• **Pacific coast highway**—The Mexico-Guadalajara-Nogales highway will be fully opened to traffic this year. The highway 1500 miles long will include new boulevards at Guaymas and Hermosillo. The road will be the first to connect a large section of north western Mexico with the capital. It will extend to the border of Arizona. Federal highways already built and now being maintained total 1302 miles, and cost $74 million.

• **New airports**—A second major airport is being built at Puerto Margues near Acapulco on the Pacific coast. Costing a million dollars, it will have a runway about 7000 ft long and more than 100 ft wide. It will permit international flights from the United States to land directly at Acapulco.

Other new airports are being built at Nogales, Hermosillo, La Paz and a new passenger depot and runway are being added at the San Luis Potosi Airport.

The new passenger terminal nearly completed at the Central Airport of Mexico City, will go into service later this year. It will be able to handle up to 17,300 passengers every day.

President Aleman recently inaugurated Mexico's new military airport at Santa Lucia, 30 miles north of Mexico City.

Second Swiss dam to be higher than Hoover

Construction operations have actively begun, after two years of preparatory work, on Mauvoisin Dam in the Valais region of southern Switzerland. A concrete arch structure 745 ft high, it will be the second Swiss dam to exceed Hoover Dam's 726 ft height, since foundation operations are also under way on Grand Dixence Dam (ENR Oct. 18, 1951, p. 56) which is planned to rise to a record-breaking 912 ft in an adjacent valley to that in which Mauvoisin is situated.

Mauvoisin Dam will contain 2.6 million cu yd of concrete, and its

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reservoir of 130,000 ac ft will feed two power plants joined to it by tunnels. The first power plant, 3 miles distant from the dam at Fionnay, will operate under a head varying from 1496 to 1014 ft. The second power plant is twelve miles distant at Riddes in the Rhone Valley and will operate under a head of 3350 ft. Between them they will generate an annual average of 765 million kw hr, of which about two-thirds will be summer energy. With the new power plants, energy production in Switzerland will be increased about 8%.

The dam and appurtenant works are being built under the direction of Entreprises Electriques et Industrielle of Zurich by a group of Swiss contracting firms.

International Briefs . . .

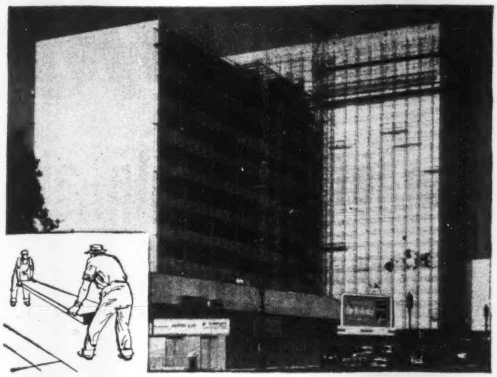
- **Colombia railroads**—Colombia will use $20 million of a $25-million International Bank for Reconstruction loan to build a 235-mile railroad from the Port of Buenaventura, up the Magdalena River Valley to Bogota and Medellin. Remaining $5 million will be used for repair shops at Bogota.

- **Airmap for Pakistan**—The Photographic Survey Corp., Toronto, Ont., has been awarded a $2-million contract for mapping 42,000 sq mi of Pakistan, and for aerial geological investigation of an additional 123,000 sq mi.

- **Behind schedule**—With only 389 miles of the highway finished to specifications, Canada's Trans-Canada Highway is well behind schedule, and officials doubt it can be finished by the target date of 1956. Resources Minister R. H. Winters said work on the road has been set aside in favor of defense commitments, and that new legislation probably will have to be sought to extend funds for the work beyond December, 1956.

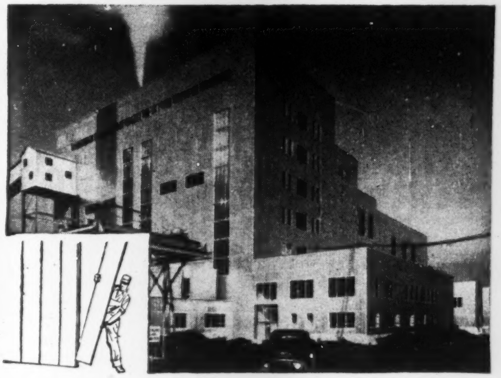
CALENDAR

Structural Engineers Association of California, Mission Inn, Riverside, Calif., Oct. 16-18.
President's Highway Safety Conference. Extraordinary session of the Pan American Highway Association, Social Security building, Mexico City, Oct. 26-Nov. 1.
California section, American Water Works Association, Huntington Hotel, Pasadena, Calif., Oct. 27-31.
American Association of Port Authorities, Savannah, Ga., Nov. 10-14. Structural Engineering Conference, University of Illinois, Urbana, Nov. 12-14.
North Dakota Society of Professional Engineers, Minot, N. D., Nov. 13-15.
International Association of Sanitation Engineers, conference, Buenos Aires, Argentina, latter part of November.



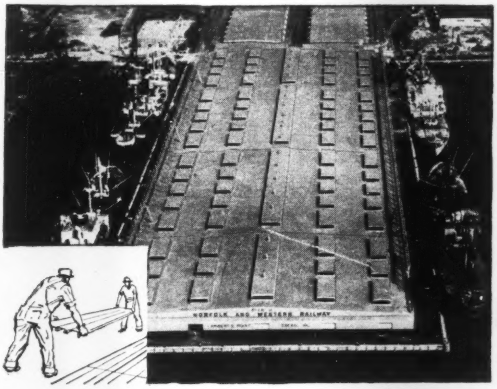
YOUR FLOORS—Fenestra "D" or "AD" Panels lock together to form a combination subfloor and beautiful prime-painted ceiling. For built-in acoustical treatment, use Acoustical "D" or "AD" Panels. Shown here is the Prudential Insurance Company building in Los Angeles.

ARCHITECT: Wurdeman & Becket, L. A.
CONTRACTOR: Wm. Simpson Construction Co., L. A.



YOUR WALLS—Fenestra "C" Panels lock together to form combination inside-outside, insulated, prime-painted, firesafe, finished walls! And they can be disassembled and put together again easily and quickly to expand your plant. Titus Station of Metropolitan Edison Co., Reading, Pa.

ARCHITECT-CONTRACTOR: Gilbert Associates, Inc., Reading.



YOUR ROOF—With Fenestra Acoustical Holorib you get a combination roof deck, ceiling, and built-in acoustical treatment, all for as little as 75¢ per square foot *installed!* Regular Holorib costs even less. Here you're looking down at the roof of the giant warehouse of the Norfolk & Western Railway Co., Norfolk, Va.

ARCHITECT: Owner's Engineering Dept.
CONTRACTOR: McLean Contracting Co., Baltimore, Md.

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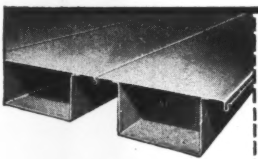
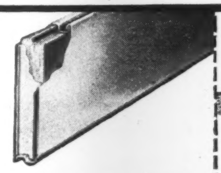
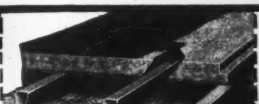


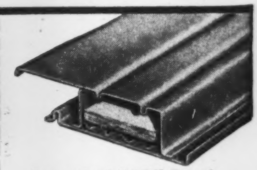
"D" Panels for floors, roofs, ceilings. Standard width 16". Depth 1½" to 7½".



"C" Insulated Wall Panels. Width 16". Depth is 3". Steel or aluminum.



Acoustical Holorib for acoustical-structural roof. Width 18". Depth 1½".



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16". Depth up to 7½".

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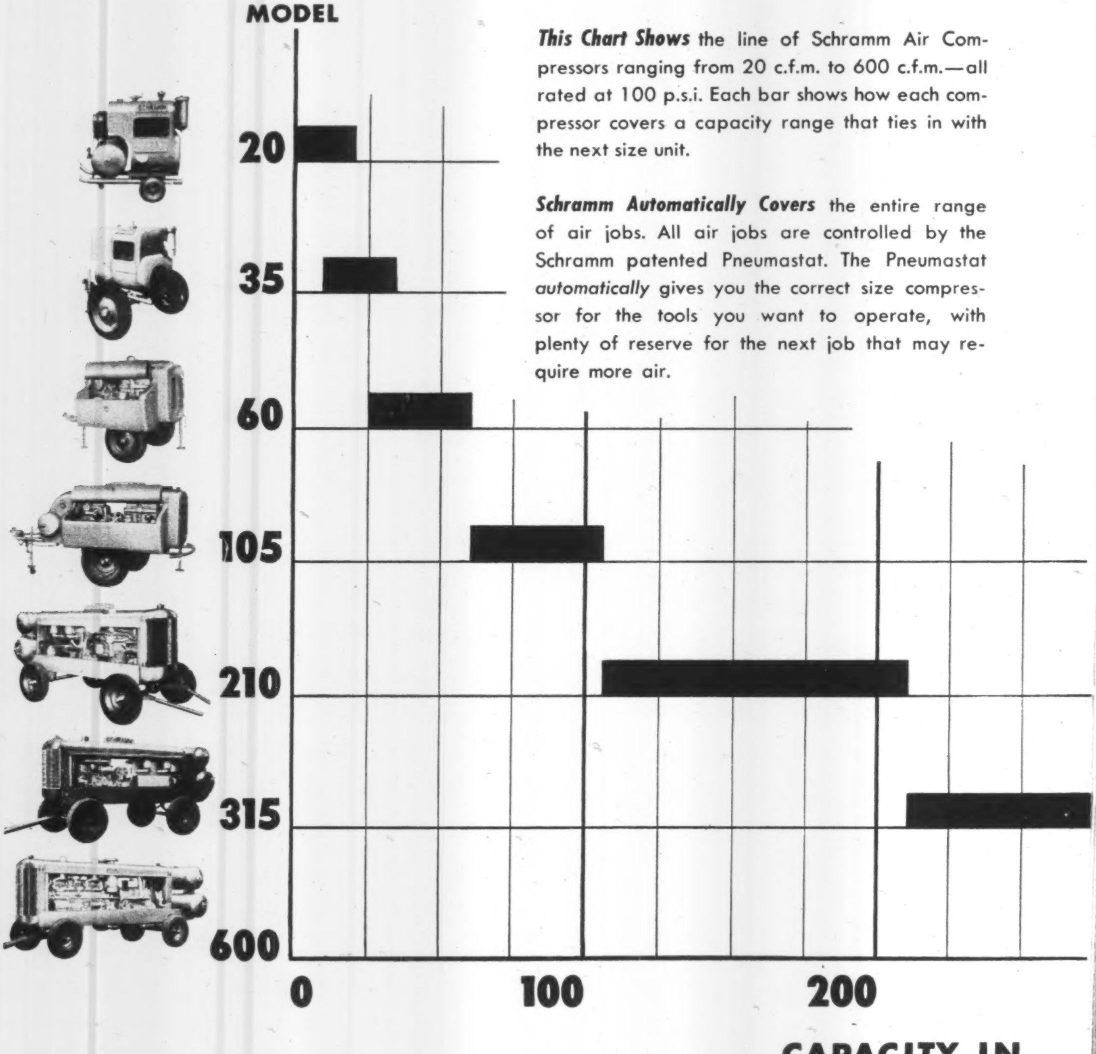

This Chart Shows the line of Schramm Air Compressors ranging from 20 c.f.m. to 600 c.f.m.—all rated at 100 p.s.i. Each bar shows how each compressor covers a capacity range that ties in with the next size unit.

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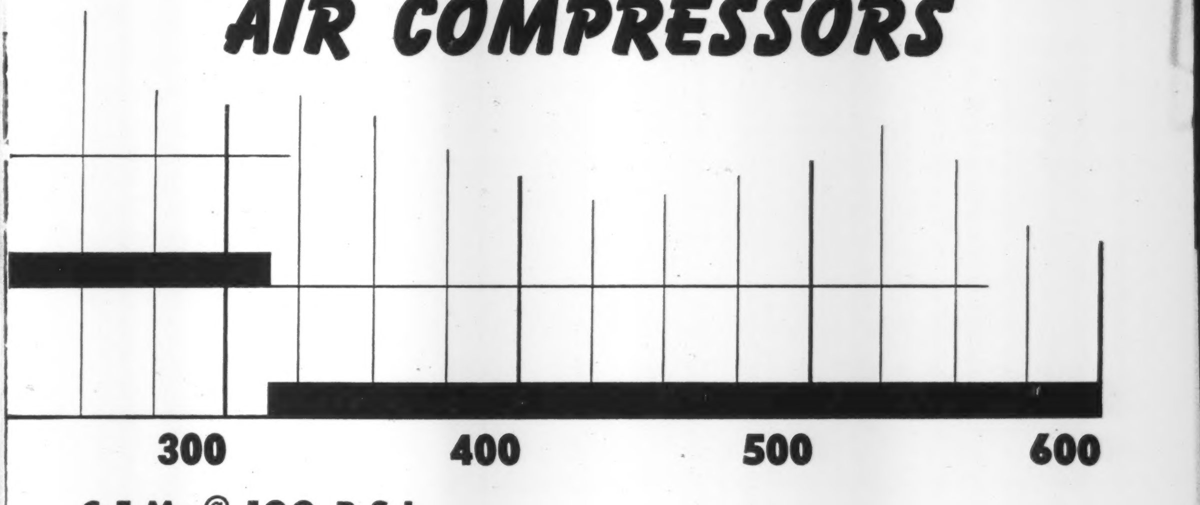
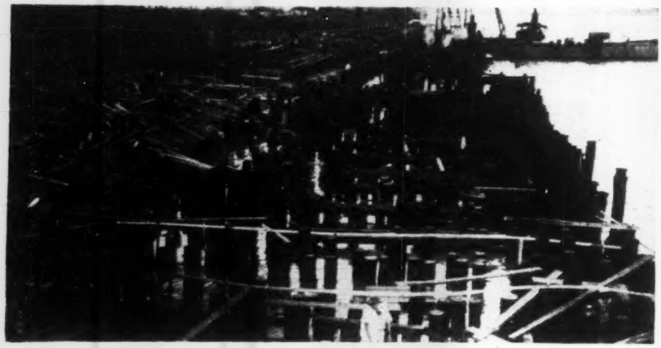
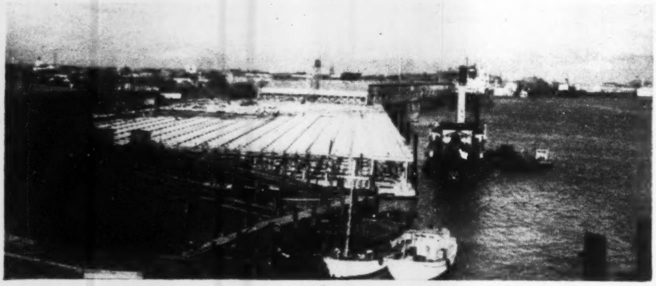


MUNICIPAL

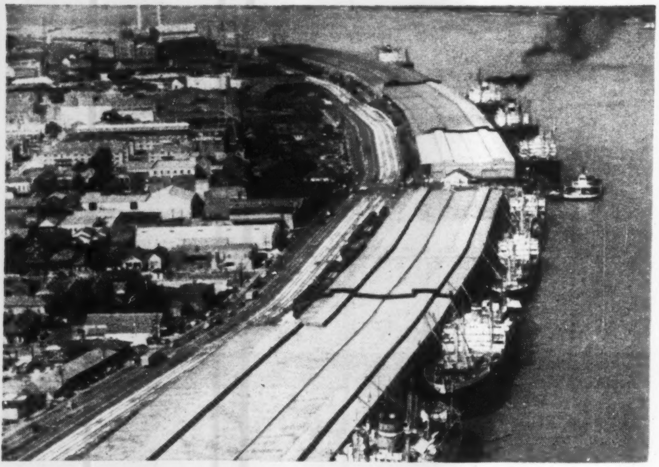
$31 million planned for New Orleans' port...



Means a lot of piling for riverside structures . . .



building up the substructure out of steel frame . . .



for a modern wharf to add to existing wharves.

A $7-million wharf building project was announced last month by the Board of Commissioners (the dock board) of the Port of New Orleans. The job is the latest in a four-year construction program that involves expenditure of more than $31 million on port facilities.

The project calls for new wharves at Charbonnet St. and at Nashville Ave., on the Mississippi River.

At present, work involving expenditure of about $13.5 million is either under way or nearing completion.

Key to the program is more than tripled port business over an 18-year period: From 12,000,000 tons of cargo handled in 1934, to 38,000,000 tons in 1951, exclusive of the tonnage handled at the New Orleans Port of Embarkation.

Foreign non-defense commerce during 1951 amounted to 10,000,000 tons of diversified cargo. The value of this foreign trade was $1.75 billion, making New Orleans the only port outside of New York with foreign commerce valued in excess of $1 billion.

Leon Irwin Jr., dock board president, said that the cost of the new Charbonnet and Nashville wharves will come from the board's operating surplus. Before 1940, port improvements were financed through bond issues.

• **Improvements**—The Charbonnet wharf will be a 1,000-ft extension of the existing structure and will be the first modern public wharf below the Industrial Canal, a waterway connecting the Mississippi River and Lake Ponchartrain.

Its construction has been made possible by a recent decision of the New Orleans Public Belt Railroad—a public railway which serves all rail lines entering the New Orleans port area—to extend its operations to the area east of the canal.

At Nashville Ave., at the other end of the dock boards's public riverfront facilities, it is planned to replace an old wharf with a modern structure, similar to Charbonnet extension. This will leave only one gap in the riverfront wharf line—at Thalia Street.

The dock board has announced plans to build a $2.5-million wharf at Thalia St., but is holding up bids pending a decision on the site of a

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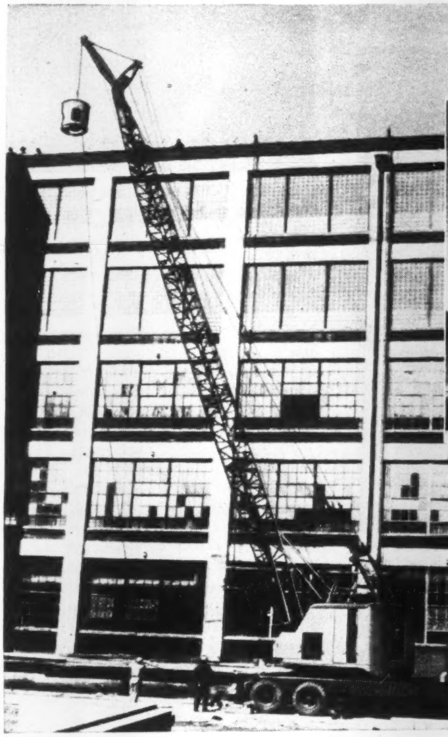

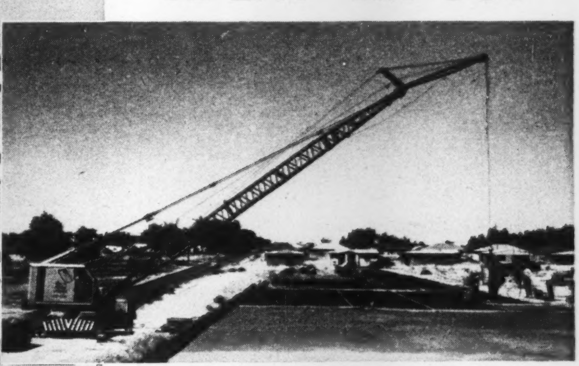

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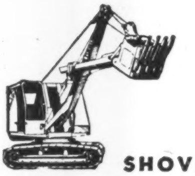

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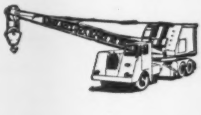

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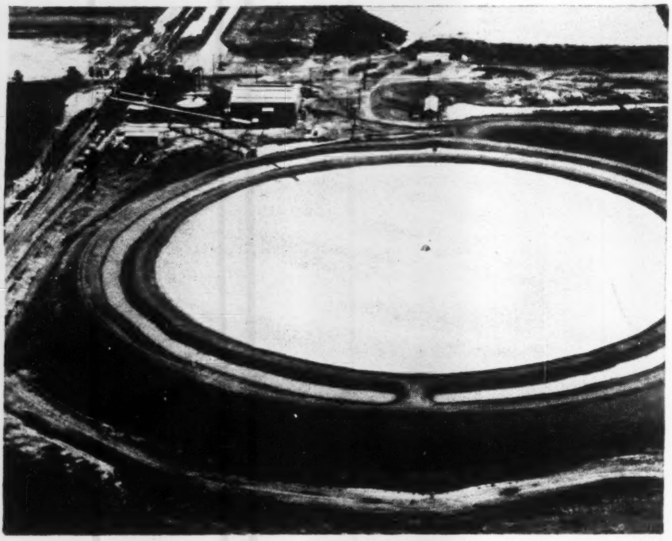

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J. A. McNIVEN, chief engineer of the Port Board of New Orleans.

proposed Mississippi River Bridge. Thalia St. is one of the sites under consideration.

In addition to the Charbonnet, Nashville and Thalia projects, dock board projects authorized and for which funds are available include reconstruction of three wharves at Toulouse, Dumaine and Gov. Nicholls Sts. Estimated cost is $4.5 million.

Plans for the Charbonnet, Nashville and Thalia projects are still in preparation, but those for the reconstruction projects at Toulouse, Dumaine and Gov. Nicholls have been completed. Start of the work awaits completion of levee reconstruction by the U. S. Engineers in the area.

These expansion plans and those already under way or completed are being carried out by E. H. Lockenberg, general manager of the dock board, and J. A. McNiven, chief engineer.

- **Construction**—The plans, prepared by McNiven's office, give a general idea of the type of wharf construction at New Orleans, where piers jutting into the river are almost non-existent and slips are a rarity.

For the Toulouse and Gov. Nicholls wharves, and at each end of the Dumaine wharf beyond an unstable river bank section (where a $1-million floodwall is under construction) it is planned to provide wharves of a noncombustible permanent construction. This type of construction consists of wood piling cut off at low water elevation, with continuous concrete footings and pedestals and longitudinal concrete struts, at intervals, to tie the footings together.

On the concrete pedestals will be

(*Continued on page 66*)

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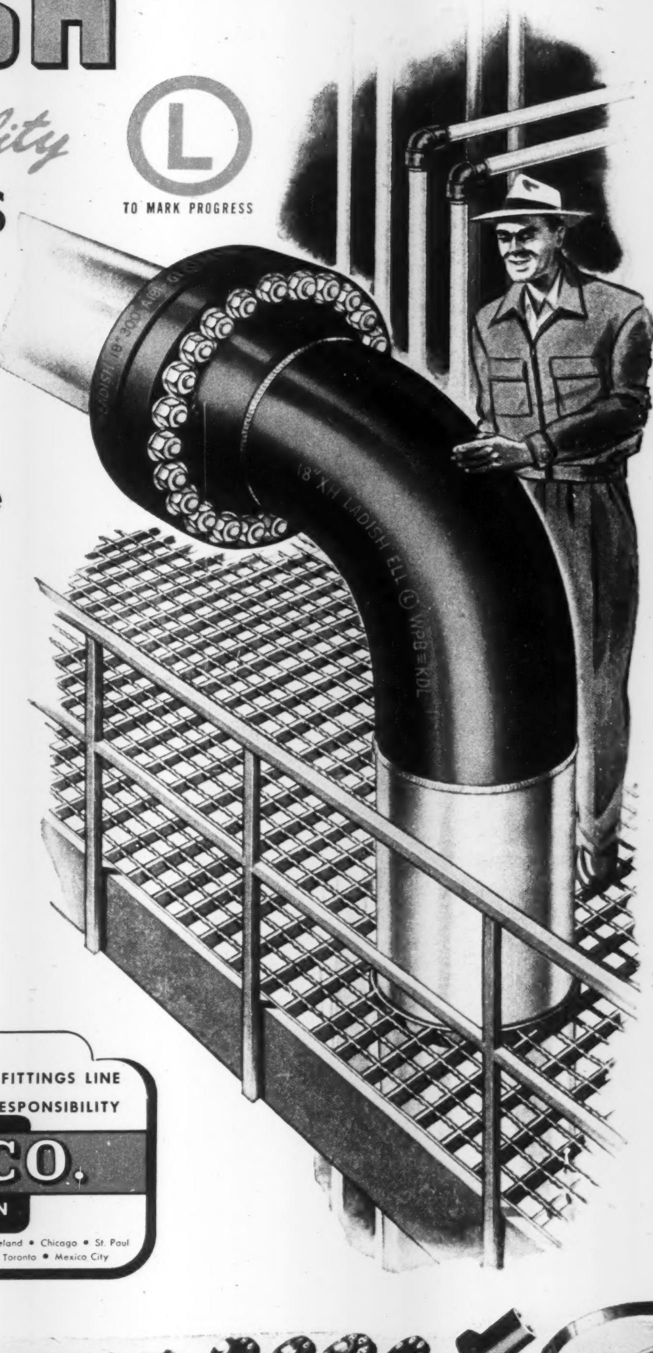

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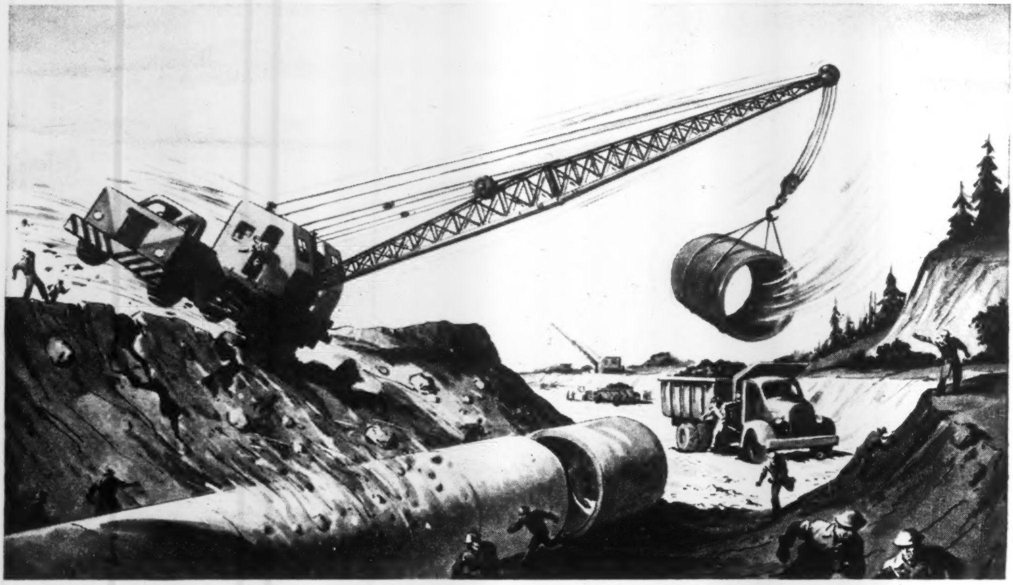

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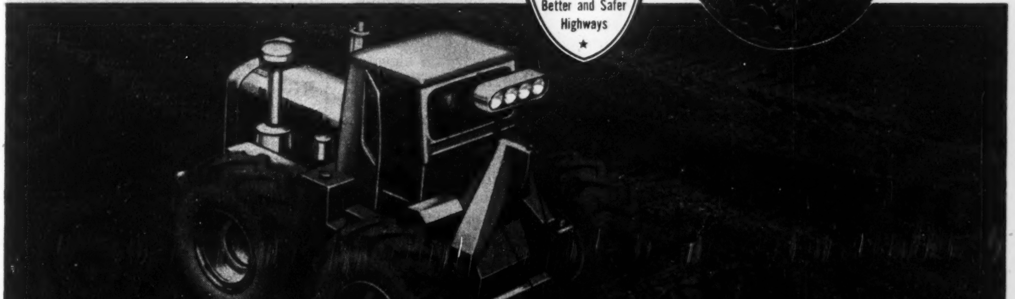

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LEON IRWIN, Jr., president of the Port of New Orleans Board.

erected a steel substructure with a concrete deck. A 30-ft concrete roadway will be provided along the rear of the wharves and a 20-ft apron will be provided on the riverside.

Transit sheds will be one-story steel frame structures enclosed with galvanized iron siding, with steel rolling doors in alternate bays at 20-ft spacings. Roofs are to have a 5-ply gravel and asphalt or tar-composition roof laid on 2-in. wood sheathing. Sprinkler and standpipe systems with hose connections will be provided within the sheds, and water lines for ship service also will be provided.

Fire walls will extend from the wharf deck to 5 ft above the roof.

• **Progress report**—Projects in the port expansion program nearing completion or just recently completed include: A $1.5-million enlargment of the Erato St. wharf; $1.5-million extensions to the public commodity warehouses; a new $3.5-million wharf at Napoleon Ave.; and a $7-million extension to the public grain elevator which will double that facility's capacity, all on the river.

In connection with the grain elevator project, a $5.6-million contract was awarded to the Fegles Construction Co., Inc., of Minneapolis, Minn., and an $800,000 foundation contract to the Blount Bros. Construction Co., of Montgomery, Ala.

"We could not compete with other Gulf grain ports—Houston and Galveston—because of a lack of grain storage space," said Irwin. "The present capacity of 2.6 million bushels will be nearly doubled by the new addition, and new handling machinery will also be installed to take care of the heavy flow of grain from inland states."

When the contracts were awarded in February, Irwin said that no bonds would be sold to finance the new construction. "We can pay for this project from current operating revenues.

Other projects which are completed include: A $500,000 Congress St. wharf, a $1.5-million wharf at Esplanade Ave., a $325,000 project at St. Maurice Ave. wharf.

The board is also spending $250,000 for land improvement along the Industrial Canal to make more sites available for new industry.

• **Future**—The port expansion program will get an additional impetus when the proposed tidewater channel to the Gulf of Mexico is built. This channel would run from a point on the Industrial Canal to the gulf and would permit the largest ships afloat to enter the port by an alternate route to that of the Mississippi River.

The proposed tidewater channel has been approved by the U. S. Engineers, and awaits congressional appropriations.

The dock board has made plans for a terminal development along the industrial Canal at the point where it will connect with the proposed tidewater channel.

Preliminary plans have already been made for construction of slips and piers. No detailed estimate has been made, but it considered that the ultimate cost would be from $35 million to $45 million.

On the piers it is proposed to provide wharves and transit sheds of the most modern and efficient type, with wide aprons, shipside railroad tracks, cargo handling equipment, together with roadways, parking space, railroad storage tracks, interchange and classification yards, and other facilities for a compact and efficient terminal.

River piers opposed

A spokesman for the New Orleans dock board told a U. S. Engineers' hearing last week that the board would never consent to the construction of a bridge requiring piers within the port area.

The board insists that vertical clearance should be at least 175 ft above high water. The highway department is asking for extension of a permit to build a bridge with the following specifications: High level fixed-steel span; 3,000 ft long; four concrete piers in the river; channel span of 1,750 ft; 135 ft clearance over the channel at high water.

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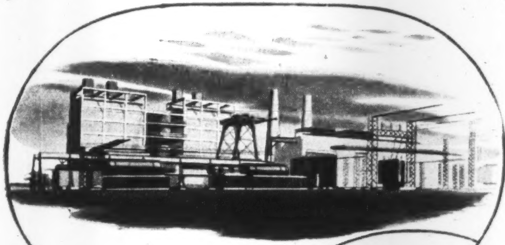

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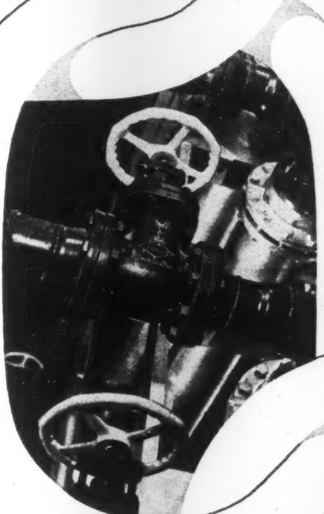
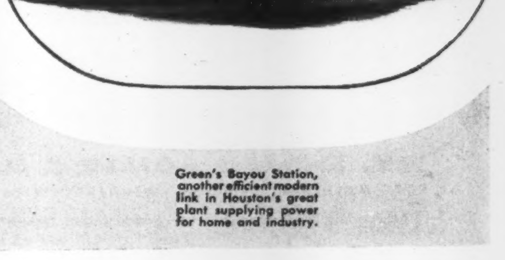


Some of the many Jenkins Cast Steel and Iron Valves on pipelines at the Houston Lighting & Power Company's plants.



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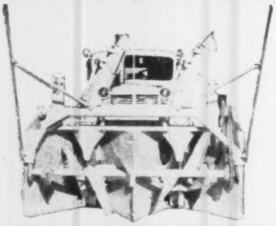

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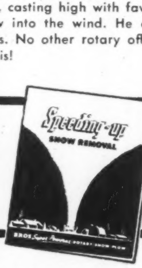

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MUNICIPAL

$16-million sewage plant recommended by engineers

A board of engineers retained by the County of San Diego, Calif., has presented a preview of its findings after a year-long study which recommends that San Diego metropolitan area integrate its sewage disposal and collection facilities and construct a $16-million disposal plant.

The recommendation is contained in a summary of the San Diego County Sewerage Survey presented recently to the County Board of Supervisors. The complete 1,000-page report will be submitted next month.

The supervisors appropriated $60,000 for the study and on recommendation of a county-wide committee of engineers representing public agencies retained three experts to make the study. They are A. M. Rawn, chairman, chief engineer and general manager of the Los Angeles County Sanitation District; David H. Caldwell, partner in Caldwell & Brown, engineering firm, San Francisco; and Charles Gilman Hyde, Berkeley, retired professor of sanitary engineering at the University of California.

Frank J. Kersnar, Caldwell & Brown, was principal assistant engineer to the board.

The board divided the county into three major sewerage areas—the San Diego Bay area, the north coastal area, and the mountain-desert area. It omitted details of its study regarding the north coastal area and the mountain-desert area in its summary report.

• **Report**—The San Diego Bay area should be served by a primary-type treatment plant to be located on the Pacific Ocean side of Point Loma—one of the two peninsulas which form San Diego Bay, the report said.

It would be built in the Fort Rosecrans Military Reservation and would disperse sewage, after treatment, into the Pacific Ocean 7,500 ft from shore at a depth of 125 ft.

The $16-million cost estimate includes the plant and connections with major sewers and plants existing in the metropolitan area.

The board recommended that the City of San Diego finance the installation with the other five incorporated cities, four sanitation districts and the Tijuana, Mex., International Sanitation Board, reserving capacity rights for later use. Eventually San Diego would be reimbursed for $9 million of the cost after all rights had been purchased from the city by the smaller agencies.

(*Continued on page 70*)

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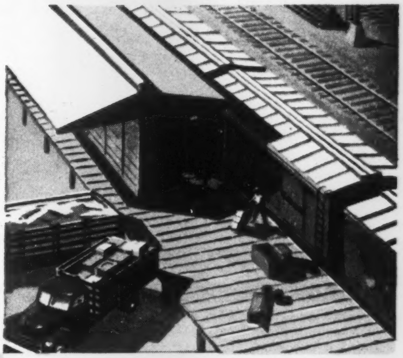

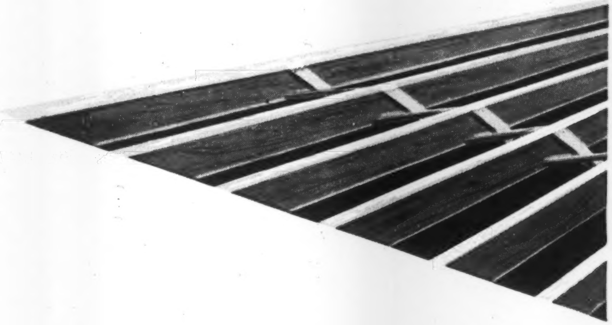

...lasts years longer when penta* PROTECTED

You use wood for building construction because it is the most workable of materials, offers the greatest flexibility of design and is always available. And when you specify PENTA protection for the wood you use, you also add the valuable qualities of *durability* and *long structural life*.

The treatment of wood with PENTA assures service life many times increased through the prevention of rot and termite damage. This PENTA protection is *permanent*, too, since PENTA will not leach or evaporate. Workability is unimpaired, and building mechanics prefer to work with PENTA-treated wood because it is *clean*.

For more data write Dept. PE 39A for one of the following:

- *Plant Wood Treating Specifications*
- *Valuable Booklet, "Pointers on Penta"*

***"Wood treating specifications:** Structural Lumber, all species, and other wood construction materials to be used in contact with the ground and exposures of similar severity, and not to be painted, shall be treated by a method which will give a minimum net retention of 8 lbs./cu. ft. of '5% penta petroleum oil solution.' For bridge material a minimum net retention of 12 lb./cu. ft. shall be used. Where an especially clean treated wood is desired, the oil shall meet A.W.P.A. specification page 50 Section 2."*

(This is an excerpt from the wood treating specifications of a plant operating in the Gulf Coast Area.)

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MIDLAND, MICHIGAN

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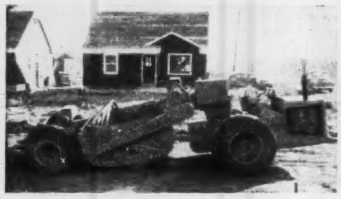
Spreads, compacts, covers garbage

As garbage is trucked in, versatile 122 h.p. Tournapull, with Bulldozer blade, spreads and dozes it into place on city landfill disposal dump. Machine's normal travel, on big rubber tires, back and forth in trench, solidly compacts refuse. Garbage is sanitary-sealed by: (1) dozing dirt down from trench walls, or (2) hauling in dirt as Tournapull excavates next parallel disposal ditch. On extra jobs, 28 m.p.h. mobility on rubber lets Tournapull drive anywhere, any time, over city streets . . . no waiting for trucks, no loading delays.

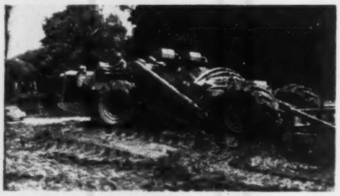


Grades city streets, subdivisions

Working at Royal Oak, Mich., D Tournapull moved 25,000 yds. grading streets and leveling subdivision site. On 300′ to 500′ one-way hauls, rig self-loaded 6½ loose yards in 1 min., delivered an ave. of 20 loads per hour. One-man operation cuts costs.

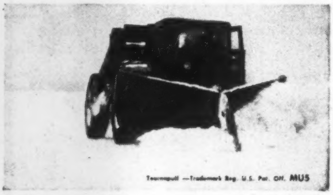
Handles maintenance jobs

Fleet of 3 Tournapulls handled 4 jobs 55 miles apart near Madison, Wis. . . . all in 6 days. On work-and-run schedule, high-speed "D's" (1) cleaned drainage ditches, (2) graded village streets, (3) filled mud holes with sandy gravel, and (4) prepared sub-base for new grade.



Widens, straightens roads

Widening and straightening 2 miles of heavily-traveled Lake Shore road in Cleveland, Ohio, two 7-yd. "D's" moved 50 loads of sandy top soil 350 ft. hourly. Soft-cushion tires and excellent maneuverability permitted working over pavement without interrupting traffic.



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In winter, plows, removes snow

Tournapull works year 'round. Working at 20° below zero at Cooperstown, N. D., this "D" plowed through 2 to 6-foot crusted drifts, at speeds ranging from 6 to 11 m.p.h. During summer, rig handles road maintenance, digs drains, trenches, water reservoirs, etc.

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LETOURNEAU TOURNAPULLS

MORE WORK PER HOUR WITH RUBBER-TIRED POWER

Eight alternative plans are presented for the metropolitan area but this one, designated Core Plan A-1 was listed as the most economical.

All wastes originating in the cities, communities, industries and military establishments adjacent to San Diego Bay are at present discharged into the bay. This has already brought one small area of the bay to a bacterial concentration exceeding that considered safe for recreational use.

The survey warns that the central and south sections of the bay are already approaching the prescribed minimum levels of dissolved oxygen concentrations.

The survey includes studies of climate, tides, chemical factors in sewerage, population locations and trends expected in the next 50 years, as well as possible methods of financing.

All public agencies concerned with sewerage problems in San Diego County joined in urging the Board of Supervisors to have the study made with a view to coordinating all future sewerage work into a master plan. The city, alone, means major expenditures for additional treatment facilities within the next year or two.

Builders offer saving to public housing agency

An offer by private developers to build public housing at Miami, Fla., for half the unit cost planned by the Public Housing Administration is getting a cool reception.

The Miami Housing Authority has been stalled more than three years by squabbles over a site needed for a 1,000-unit, $11-million public housing project for Negroes.

Richmond Development, Inc., made the offer of help—an offer that would also clear up the site difficulty—but the public agencies are not enthusiastic. Richmond formally said it would provide a 100-acre site and build half of the project, 500 units—plus all utilities—for $4,995 per unit. This is less than half of the PHA estimated $10,960 per unit.

The offer came as a wrangle over a 62-acre site chosen by MHA landed in the courts. The site chosen includes an area in which prosperous Negro families have bought land and built many fine homes, some of them valued at $18,000 and $20,000.

These owners have filed two suits to stop the housing project.

The site Richmond Development Co. would provide is in a 2,200-acre subdivision called Richmond Heights, where 589 single-family houses have already been built.

(Continued on page 72)

This modern machine is next to infallible—yet even so, the Bethlehem operator checks the reduction of his wire.

His attention to detail means better rope for you

Wire-drawing is a fundamental step in the making of Bethlehem rope, and it's done on machines that almost never make mistakes. Nevertheless, this operator, like others in the Bethlehem mill, runs frequent checks on the work going through. He wants to be sure that his part of the job meets the specified standards—which are very, very high.

This care, this attention to detail, is not confined merely to the drawing of wire. It begins with the making of the steel used in Bethlehem wire rope, and it carries through each and every step to the final inspection and reeling.

Care is a lot of *little* things which, taken together, mean a quality product. It is one of the reasons why you cannot buy a better rope than Bethlehem makes.

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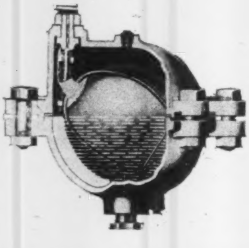

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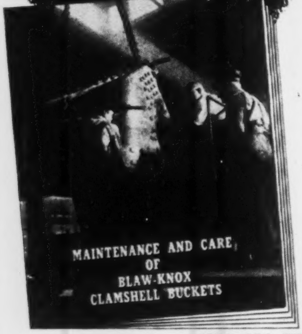

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HOW TO SAVE YOUR BUCKET

Among the many "bucket saver" suggestions are a list of "do's" and "don'ts" on the use and abuse of clamshell buckets; tips on how to prolong cable life; common operating mistakes that make bucket lips bow in or bend out.

HOW TO GET THE MOST FROM YOUR BUCKET

"How to Reeve the Bucket for Maximum Efficiency" is illustrated and described in detail. One page is devoted to instructions for operators.

HOW TO REPAIR BUCKETS

Methods of renewing the cutting edges of worn bucket lips include special welding precautions. This section contains instructions for removing and replacing ball bearings in lever arm sheaves, lubrication instructions, and many other practical hints for care and maintenance of clamshell buckets.

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THE MOST COMPLETE RANGE OF SIZES AND TYPES

It has been suggested that the 1,000 public housing units be divided equally between Richmond Heights and Bunche Park, a residential subdivision northwest of Miami. Both Richmond Heights and Bunche Park already have the community facilities required by PHA.

Reaction of the housing authority to the Richmond offer was cool:

"We'll consider it, of course," said Executive Director J. T. Knight. "But I doubt that we can accept it."

Knight pointed out that both Richmond Heights and Bunche Park are some 15 miles from downtown Miami. The authority's operations are limited to a radius of 10 miles.

Knight also pointed out that the housing authority is forbidden by law to buy package deals in public housing; that it is required to build through competitive bidding.

His final objection was that both sites are so far out that residents would have to pay as much as 60¢ to 90¢ a day for bus fares to Miami and Miami Beach.

Trim Knoxville sports plans because of rising costs

Despite increased construction costs, Knoxville, Tenn., City Council decided to construct a $500,000, 5,700-seat, abbreviated sports stadium but is undecided whether to spend $2 million—its share—on the $6-million University of Tennessee Memorial Research Hospital.

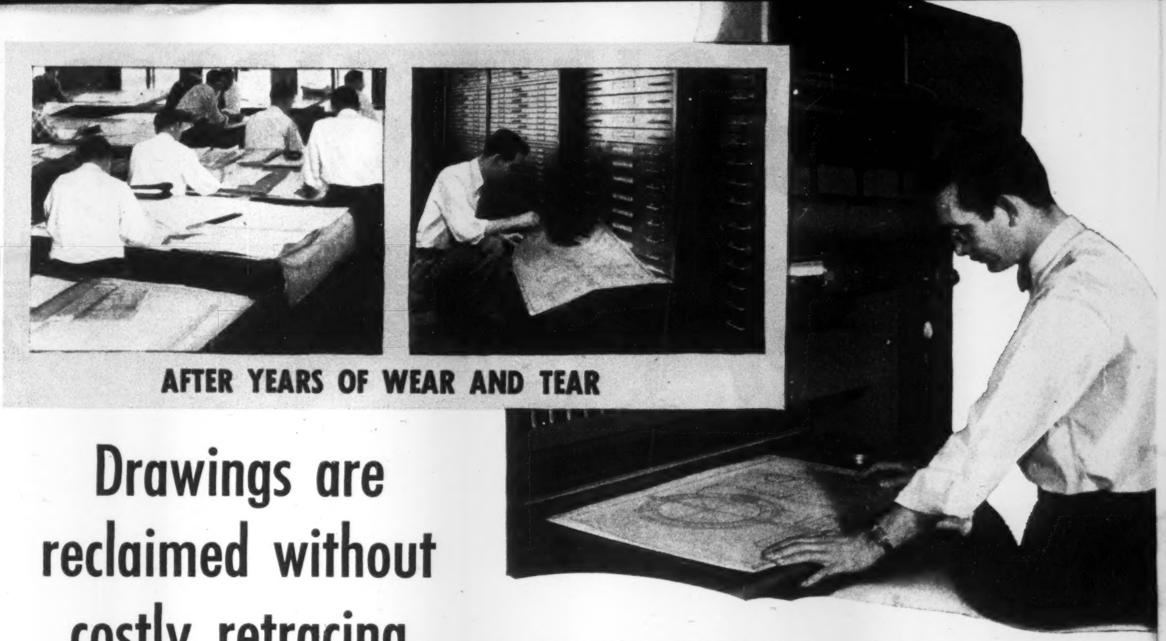
Drastic changes in plans and specifications were ordered to bring the stadium within the $500,000 authorized by referendum. The hospital bed capacity was cut from 515 to 317 to bring it within the $6 million of which $3 million is to be paid by the state, $1 million by Knox County.

City and county officials have expressed doubts as to whether the project, as it now stands, will accomplish the original purpose of the city. The city had intended to abandon its general hospital. The university was to operate the new hospital.

Pennsylvania to spend $2 million for renovation

The Commonwealth of Pennsylvania is spending some $2 million, mostly for new utility lines, in renovating and improving its $10-million (1900 price) state capitol building in Harrisburg.

The renovation includes a new water distribution system, a new electrical system, new steam lines and new sewers.



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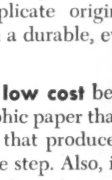

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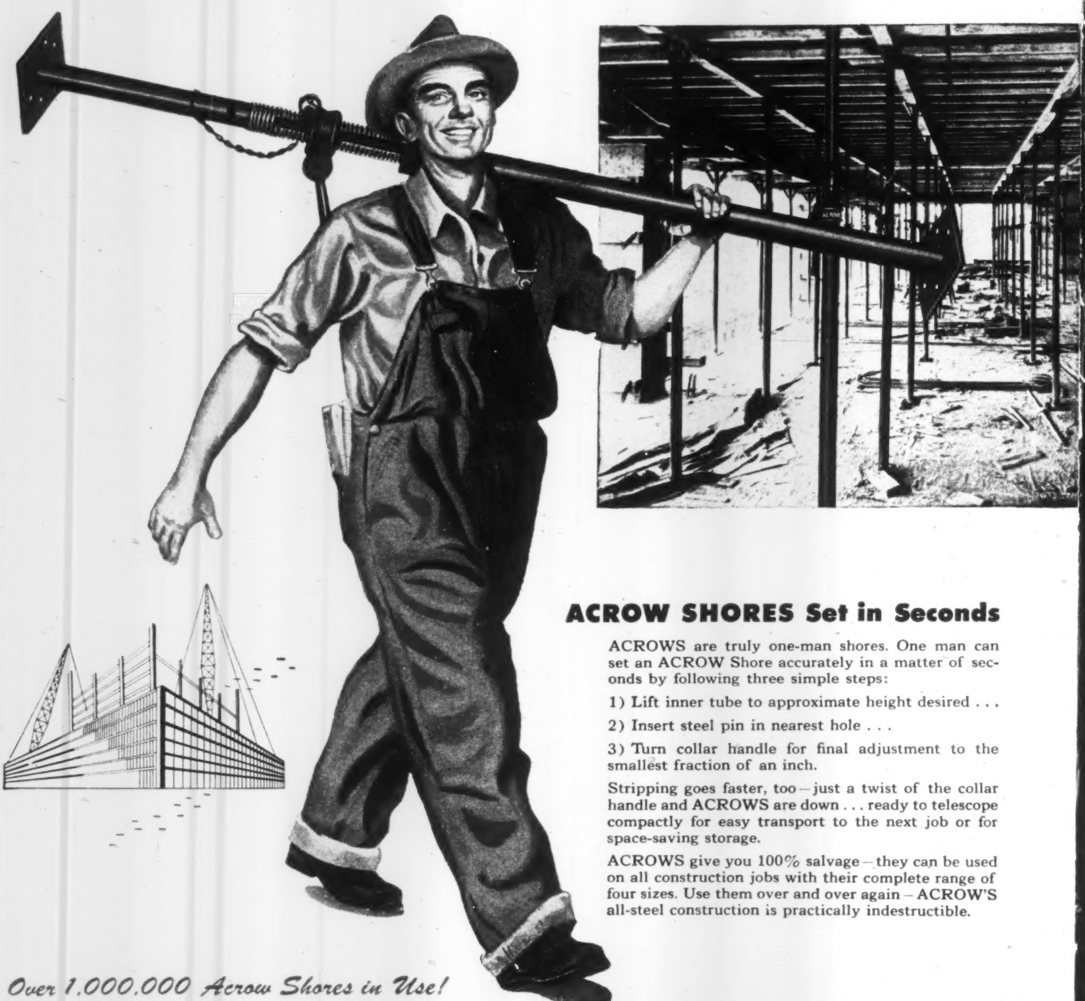

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2) Insert steel pin in nearest hole . . .

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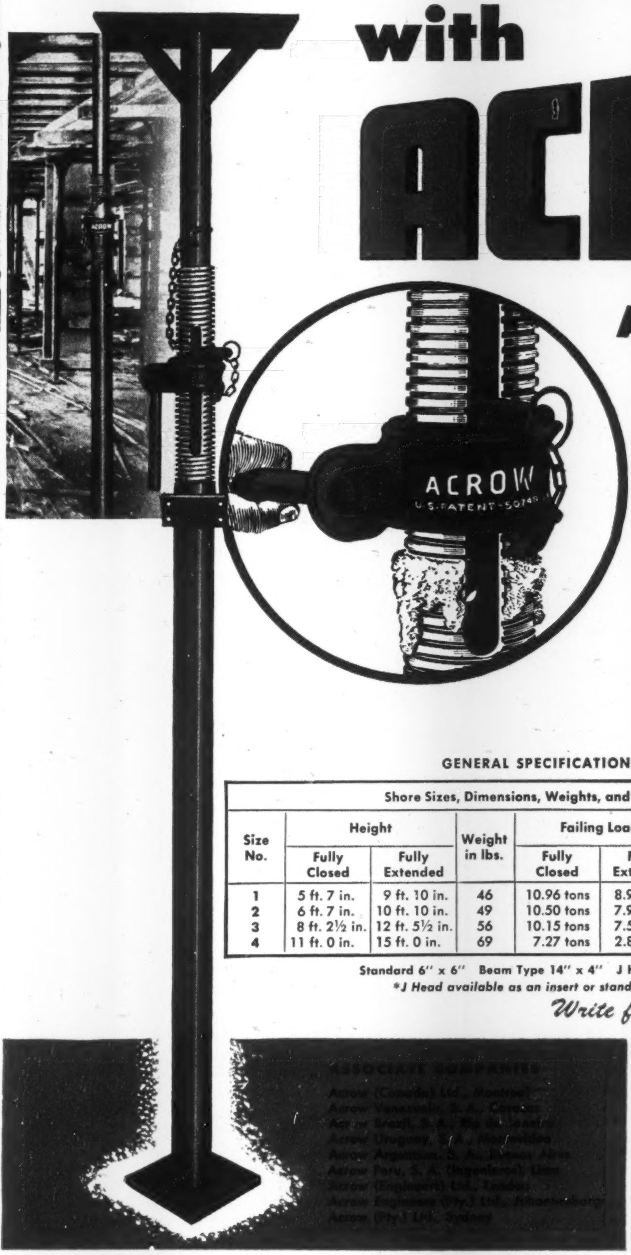

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Size No.	Height		Weight in lbs.	Failing Load		Recommended Safe Working Load	
	Fully Closed	Fully Extended		Fully Closed	Fully Extended	Fully Closed	Fully Extended
1	5 ft. 7 in.	9 ft. 10 in.	46	10.96 tons	8.97 tons	8210 lbs.	6720 lbs.
2	6 ft. 7 in.	10 ft. 10 in.	49	10.50 tons	7.90 tons	7840 lbs.	5975 lbs.
3	8 ft. 2½ in.	12 ft. 5½ in.	56	10.15 tons	7.55 tons	7490 lbs.	5600 lbs.
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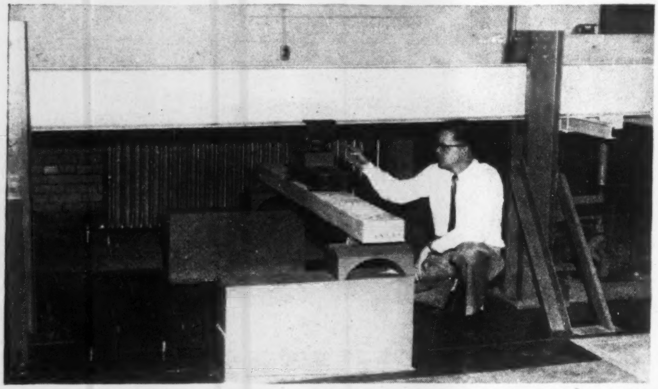


SIDE VIEW OF MACHINE—Professor Nordby shows the coil spring through which load is applied. It reduces impact to a minimum. Pivot point is at left, floating end and eccentric drive at right.

New fatigue machine tests prestressed concrete

For the last three years, the University of Colorado has been carrying on an extensive research program in prestressed concrete. The main thought behind this research is to eliminate many of the doubts, as well as some of the sensational aspects of this new structural medium. One of the most difficult problems that has to be solved is how prestressed concrete behaves under fatigue, impact and long time loadings.

In an attempt to investigate these problems, a fatigue machine has been built by Gene M. Nordby, assistant professor of civil engineering, and is now in operation on preliminary tests. This machine consists of a large "walking" beam which pivots between two upright supports anchored in concrete. The other end "floats" between two uprights faced with bronze bearing plates. The walking action of the beam is received from an eccentric mounted below the floating end of the beam. A 3 hp. motor is used for a drive and an old automobile transmission is used to gear the motor down to the required speed. The shift on the transmission allows a limited selection of speed of from 20 to 80 repetitions of load per minute. Loading of the test beam is accomplished by piling concrete billets on the floating end of the walking beam. This dead weight is multiplied by a simple lever system to a coil spring which in turn loads the test beam. There is a slip joint in the driving arm which allows the load to follow the test beam as it deflects more and more under repeated load.

Preliminary tests that have been carried out on bonded prestressed concrete indicate a substantial decrease in the bonding action between the wire and the concrete after 1,000,000 load repetitions. Tests will be continued for the next two years and a complete report will be issued at that time.

New-type truss for houses tested

A light, wood truss especially designed for story-and-a-half houses has been tested by the University of Illinois Small Homes Council as part of a research study sponsored by the Housing and Home Finance Agency.

On a 24-ft roof span, this truss will provide a second-floor room 12 ft wide with a ceiling height of 7½ ft. This living space can extend the full length of the house and can be divided into rooms.

The truss proved acceptable under roof loads equal to about 5 ft of snow and occupancy floor load of 30 psf. The design is part of a study to determine which methods best take advantage of the physical characteristics of lumber without waste in materials or labor.

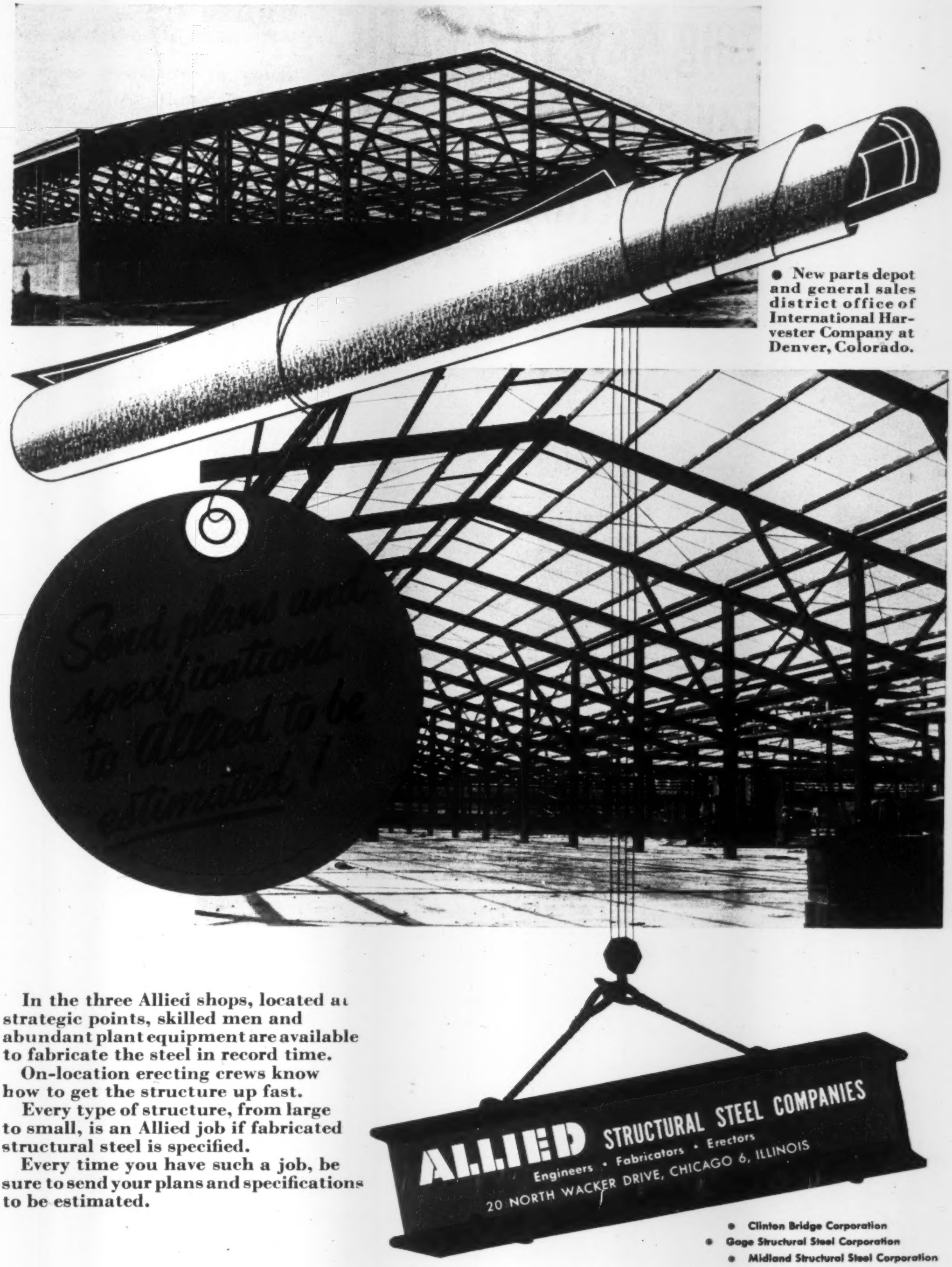
Small house roof truss instructions available

Instructions for building two of its recent developments—the "W" roof truss and the closet-wall—have been issued by the University of Illinois Small Houses Council. The instruction sheet, for the "W" truss, having a span 20 ft. 8 in to 32 ft 8 in presents cutting diagrams, nailing schedule, design data, and also a series of 23 sketches on how to build the truss.

The closet-wall sheet shows basic closet units and their construction from thin-wall panels of laminated hardboard and gypsum board.

Each of the instruction sheets is available at 10 cents a copy from the Small Homes Council, Mumford House, University of Illinois, Urbana, Ill.

ROOF TRUSS TESTING—Developed for 1½-story houses, a roof truss supports concrete blocks equivalent to a load of about five ft of snow and a normal occupancy load of 30 psf in the interior of the house. Tests were made by the Small Homes Council at the University of Illinois, Urbana, Illinois.



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Study of waterway areas and retaining walls made

Two new studies, of waterway areas and of retaining walls and abutments, have enlarged to eleven the number of research projects in efficient road construction at the University of Illinois.

This program is sponsored by the Illinois Highway Research Council, a joint undertaking of the College of Engineering at the university and the Illinois State Highway Department. The council consists of 13 members, with Prof. Ellis Danner of highway engineering as director of the program.

The cost of this undertaking will approximate $185,000 in the coming year, with the state contributing about two-thirds of the funds and the university the remainder in space, supervision, power and other services.

The investigations undertaken will try to develop whether certain features of present highways are being overdesigned, at a resulting higher-than-necessary cost to the taxpayer.

Under the Illinois laws the state division is responsible for all highways, state, city, county and township.

The first of the two new projects, called "Determination of Waterway Area," will be carried on by Prof. J. J. Doland and Philip Chow. It deals with such structures as bridges, culverts and storm drains. Nobody really knows how large such drainage structures should be, Prof. Danner points out, and, therefore, the study will include all aspects of the problem. Even data will be examined to find out how much rainfall can be expected.

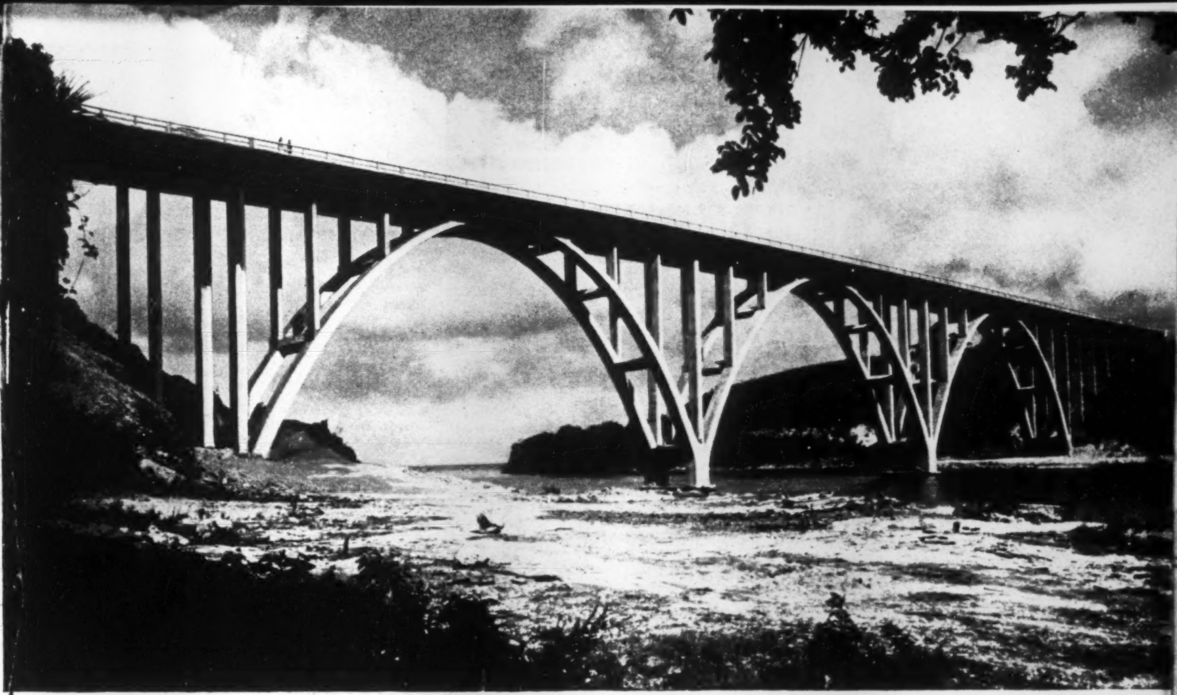
"A look at some of our local streets after a heavy rain shows that engineers didn't guess well enough in former years," Prof. Danner observes. "The study will be an effort to apply greater scientific effort to this problem so that these structures will be adequate to do the job without being over-designed at extra expense."

- **Retaining walls**—Ralph B. Pack and H. O. Ireland are conducting the second view inquiry, "Lateral Stability of Retaining Walls and Abutments."

Structures which the highway department builds to hold back earth will be studied, including high retaining walls used particularly in hilly areas or in cities. There is earth pressure against those walls, but no one is sure how great. Bridge abutments are another example.

Other highway design problems under study include an improved gutter, storm sewer inlet, threat of spring floods to undermine bridges and high-

(*Continued on page 82*)



Structure designed under direction of Ing. Jose Menendez of Comision de Fomento Nacional; Manuel Ray, Resident Engineer.

Raymond FORGES AN IMPORTANT LINK IN HAVANA-VARADERO HIGHWAY

This graceful reinforced concrete bridge spanning the Canimar River in Cuba was completed by Raymond ahead of schedule. Hailed as one of the most functionally beautiful structures in the Caribbean, the three-span bridge is 115 feet high and has an overall length of 973 feet—a fitting symbol of the wide variety of Raymond activities.

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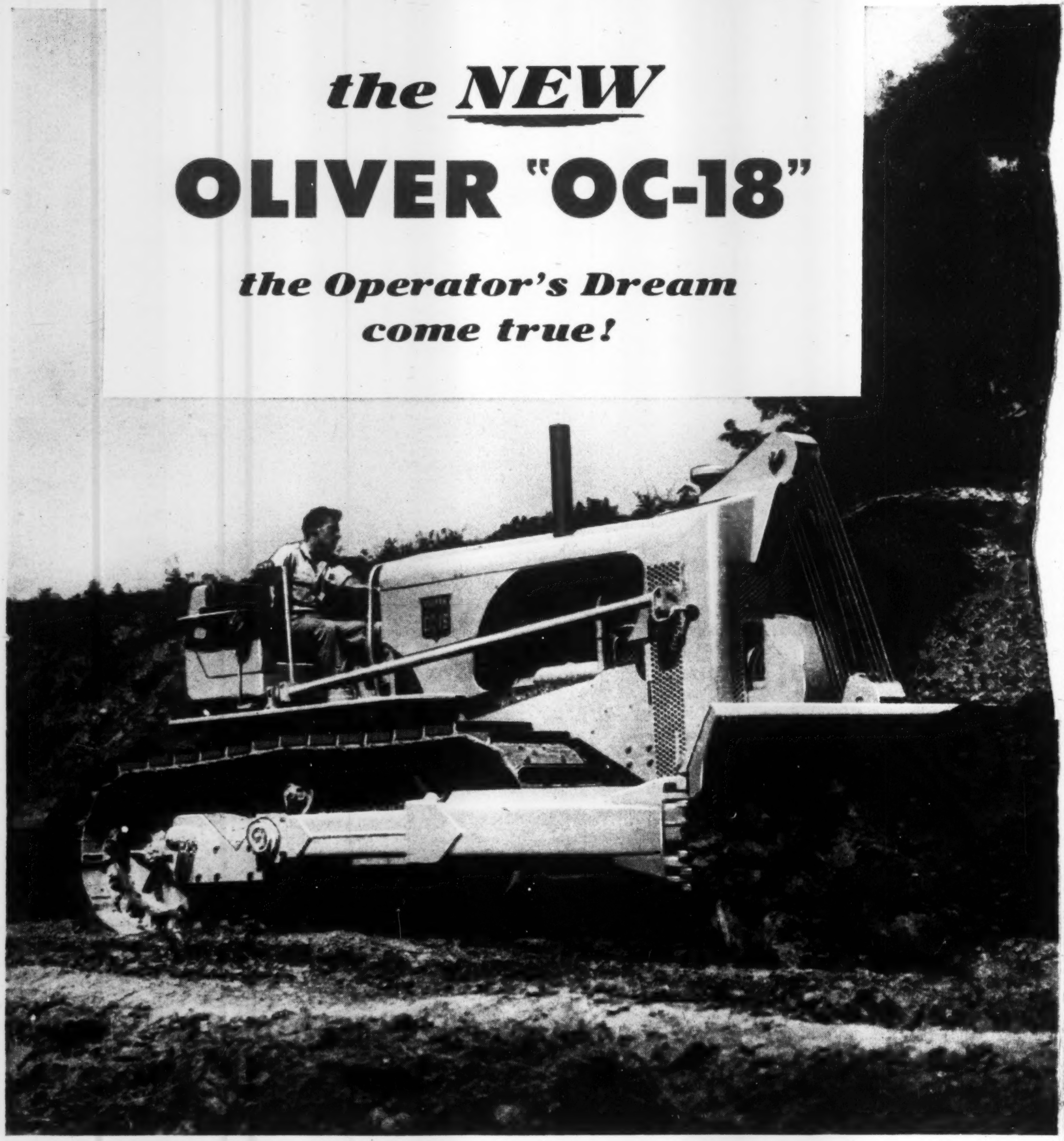
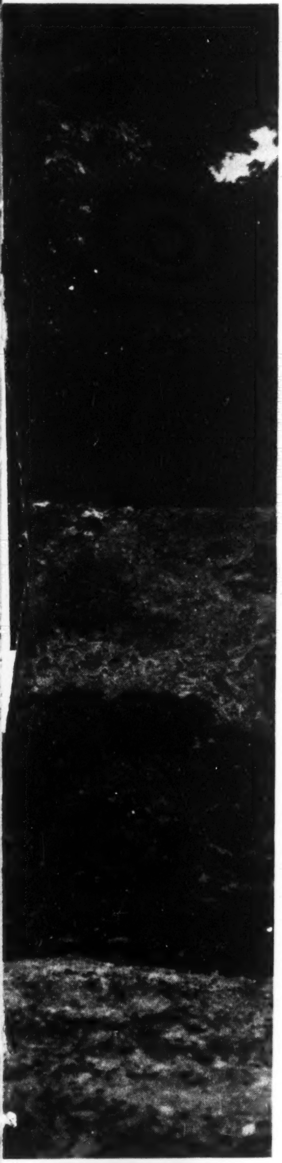
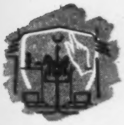


THE **OLIVER** CORPORATION

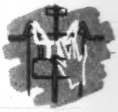
400 West Madison Street, Chicago 6, Illinois



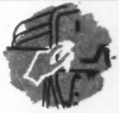
The easiest operating tractor you've ever seen —that's what you'll say when you see the new Oliver "OC-18" industrial tractor in action. Here's a tractor that has been designed specifically to make life as easy as possible for the operator. Just check this list of "easy operating" features— it puts the "OC-18" 'way out in front as the tractor that gets more done...faster...every day.



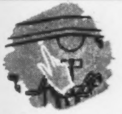
1. Over-Center Clutch. The clutch bar runs across the full width of the dashboard. No need here for the operator to hunt for a single lever . . . to take his eyes off the work.



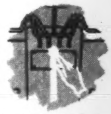
2. Air Steering is *Standard Equipment*. You can steer the "OC-18" with just two fingers of one hand . . . because air steering is *standard* equipment.



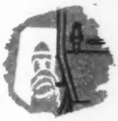
3. Cold Weather Starting Aid . . . standard equipment on the Oliver "OC-18" . . . an approved aid that assures fast, easy starting in extremely low temperatures.



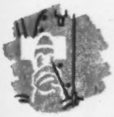
4. Push Button Electric Starting. Even on cold mornings, the husky starter of the "OC-18" gets the engine going . . . quick.



5. Center-Positioned Gear Shift Lever . . . is located right where it's easiest to reach. There's no interference with operators' legs or other controls.



6. Ample Leg Room . . . no cramped legs after a hard day's work with the "OC-18". Grouped controls assure plenty of leg room.

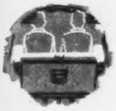


7. Convenient Foot Parking Brakes. Conveniently positioned foot brakes are standard equipment on the "OC-18".

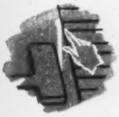
What's more, you get plus performance too! A full 126 drawbar horsepower . . . greater stability . . . more track on the ground. Just note the photograph. See how the track hugs the ground almost its entire length. That track is really working . . . it means real pulling power . . . greater stability and better balance for dozing. You distribute more of the tractor power over a greater length of "working track".

Try out this great new tractor yourself. Ask your Oliver Industrial Distributor to arrange a demonstration. When you see for yourself how easy it is to operate, you'll never be satisfied with any other big tractor.

For complete details and specifications see your Oliver Industrial Distributor or write direct to The Oliver Corporation, 400 West Madison St., Chicago 6, Illinois.



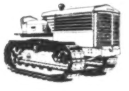
8. Comfortable, Two-Man Seat . . . plenty of room for two men in this upholstered seat. It's a big help in cutting down operator fatigue.



9. Easy-Action Friction Throttle. The throttle is located at the right arm rest of the seat in the most convenient position for the operator.

A complete line of industrial wheel and crawler tractors

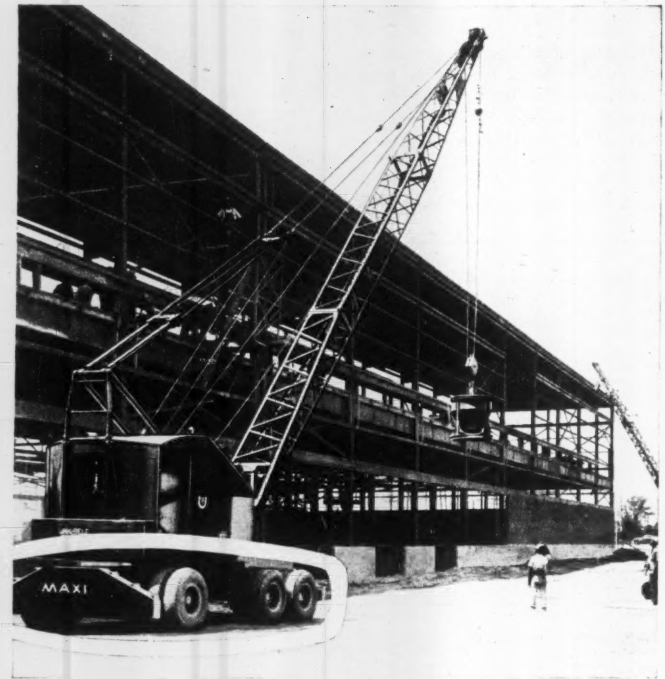
THE OLIVER CORPORATION



The OLIVER Corporation, Industrial Division
400 W. Madison Street
Chicago 6, Illinois

Gentlemen:
Please send me literature on the Model "OC-18" Industrial Crawler Tractor.

Name. . . . .
Company. . . . . **Dept**. . . . .
Address. . . . .
City. . . . . **State**. . . . .



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WITH THESE MAXIMUM ADVANTAGES

one-man control
operation stability through 360°
close quarter maneuverability
fast travel—either direction

Adaptable for all makes of cranes from 5 to 50-ton capacity.

Write for additional information.

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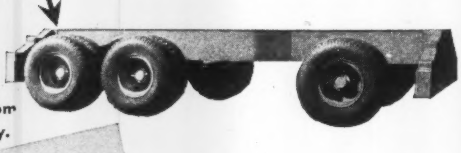
MANUFACTURED BY SIX WHEELS, INC. • LOS ANGELES 54, CALIF.



POWERED
3/8, 1/2 and 5/8 yd.
6 to 12 ton
POWERED
5/8 to 1 1/4 yd.
10 to 30 ton

(Continued from page 78)

ways, breaking of model I-beams under simulated truck loads, prestressed reinforced concrete column drawn together by the steel, the strength of a metal coupling held by nuts and bolts rather than rivets, exploration and mapping of soils in each county.

Professor Danner, who received his engineering degrees at the University of Illinois in 1930 and 1949, has been a member of the engineering faculty there since 1946. From 1930 to 1940 he was with the Illinois Division of Highways at Peoria. He served in the Army for six years and now is a reserve in the Engineers.

Other members of the Illinois Highway Research Council are: W. L. Esmond, engineer of research and planning, Illinois Division of Highways, chairman; W. E. Chastain, engineer of physical research, Bureau of Research and Planning, secretary; J. D. Lindsay, engineer of materials, Carl M. Wahl, district engineer; C. C. Wiley, professor of highway engineering at the University of Illinois; Donald B. Walker, Warren County Superintendent of Highways; William S. Pollard Jr., assistant professor of civil engineering; Fred Kellan, engineer of bridges, U. S. Bureau of Public Roads, Chicago; F. L. Anthony, U. S. Bureau of Public Roads; Duncan M. Campbell, chief engineer of the Cook County Highway Department; Virgil E. Gunlock, Chicago Commissioner of Public Works, and John T. Kearns, Champaign city engineer.

Chicago reports on pipe corrosion study

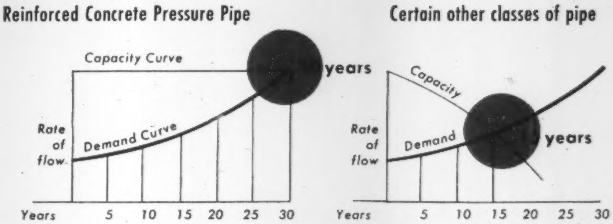
A three-year study of corrosion in cast iron pipe has been completed by John R. Baylis, engineer of water purification, Chicago, Ill. From 131 cut-out pieces of pipe examined and photographed, Mr. Baylis concludes that coal-tar coatings intended to protect against corrosion begin to disintegrate after 20 to 50 years of service; calcium carbonate is the "only known everlasting coating for iron pipe."

Lake Michigan water naturally forms a thin calcium carbonate coating that will last indefinitely on pipe walls, reports Mr. Baylis. But this coating can be maintained only by water saturated or slightly super-saturated with calcium carbonate. The difficulty is retaining this desirable condition through the treatment process.

When Chicago first put its South District Filtration Plant to work, it was just a partial operation—coagulation and settling only; filters were not

(Continued on page 85)

This is how Reinforced Concrete Pressure Pipe works for you in the FUTURE...

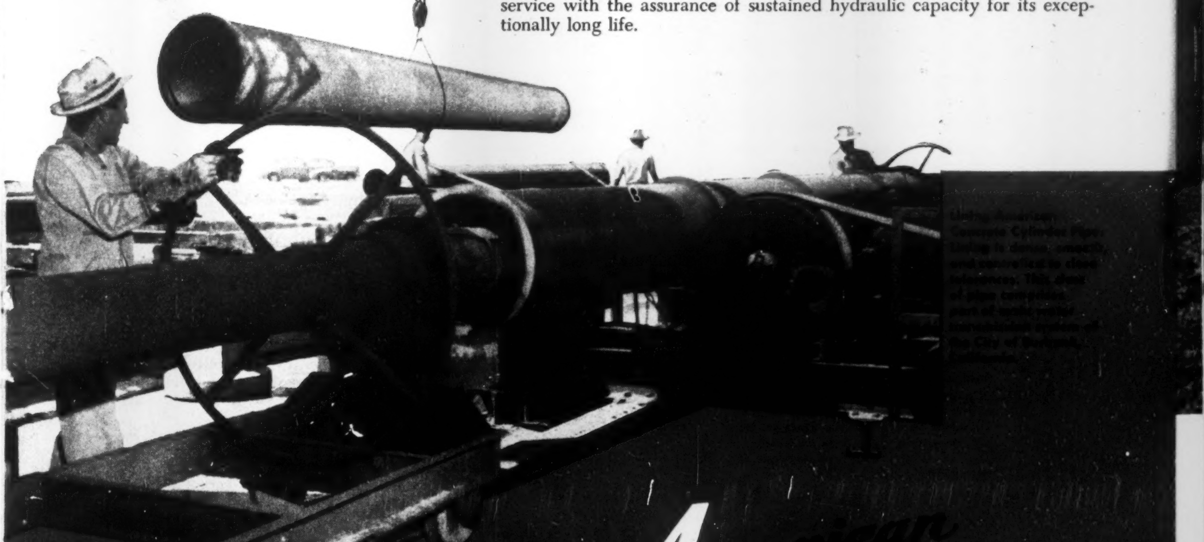


TREMENDOUS GROWTH AND POPULATION GAINS have made many community planners and water works engineers realize that in order to satisfy future needs, their main water supply lines *must* have a high sustained hydraulic capacity.

An interesting example of foresight and long range planning is the program for enlarging the water system of the City of Burbank, California. Fully realizing that the post war years would bring unprecedented population gains to their area, the City Manager, the Planning Commission and the Engineers in the Public Service Department of the City of Burbank planned and installed additional permanent water mains in anticipation of future demands. These installations involved considerable footage of American Concrete Cylinder Pipe in sizes 16" through 36". The City of Burbank's water system totals approximately 230 miles and has reached multi-million dollar proportions.

SUSTAINED HYDRAULIC CAPACITY. The use of reinforced concrete pressure pipe manufactured by this Company assures to the City of Burbank and will also assure to your community superior design, permanence and sustained hydraulic capacity, the basic requirements of long range planning.

LET OUR EXPERIENCE HELP YOU. Our more than forty years of experience and research in the design and development of reinforced concrete pressure pipe are available in helping your community plan its water transmission project wisely for the next 50 years, or even more. You can depend upon rugged reinforced concrete pressure pipe to give years of economical service with the assurance of sustained hydraulic capacity for its exceptionally long life.



Lining American Concrete Cylinder Pipe. Lining is dense, smooth, and [illegible] to close tolerances. This class of pipe comprises part of main water transmission system of the City of Burbank, California.

American PIPE AND CONSTRUCTION CO.

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Lines
P. O. Box 3428, Terminal Annex, Los Angeles 54, California
Main Offices and Plant—4635 Firestone Boulevard, South Gate, California • District Sales Offices and Plants—Oakland—San Diego—Portland, Oregon

FOUR PLANTS TO SERVE YOU

PORTLAND
SAN DIEGO
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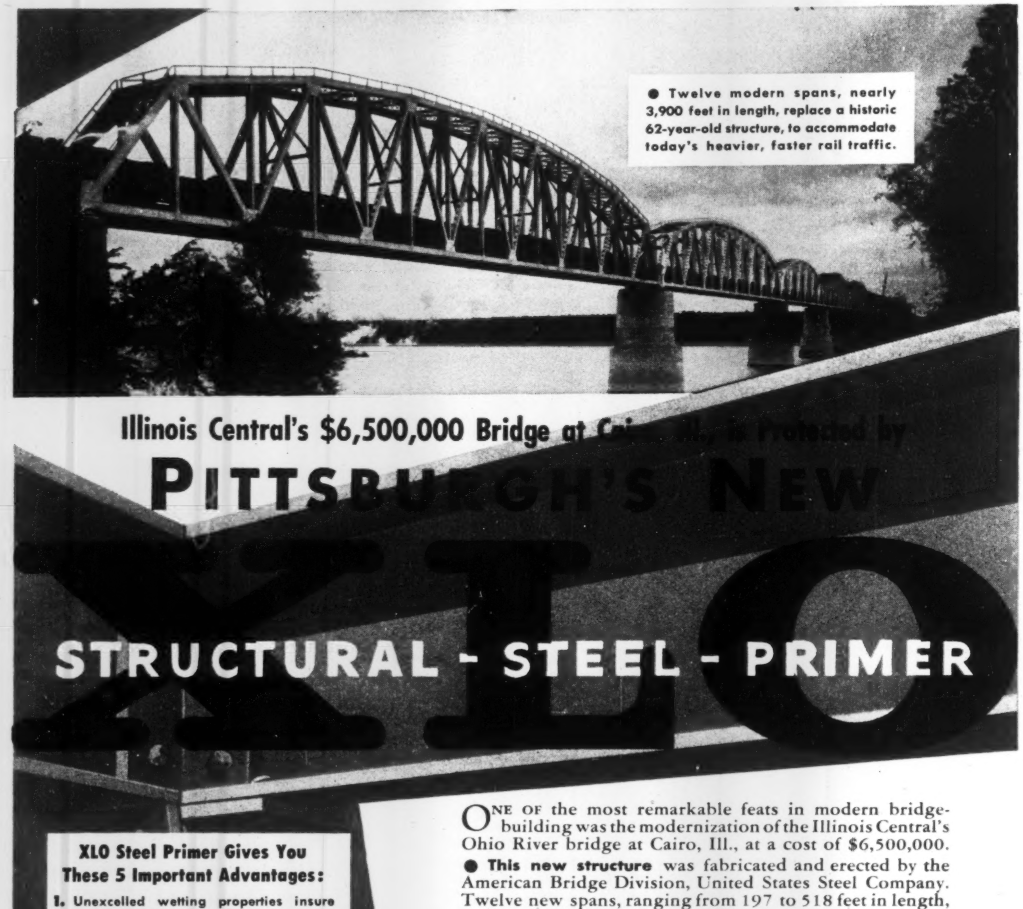
SOUTH GATE

● Twelve modern spans, nearly 3,900 feet in length, replace a historic 62-year-old structure, to accommodate today's heavier, faster rail traffic.

Illinois Central's $6,500,000 Bridge at Cairo, Ill., is Protected by

PITTSBURGH'S NEW

XLO

STRUCTURAL - STEEL - PRIMER

XLO Steel Primer Gives You These 5 Important Advantages:

1. Unexcelled wetting properties insure uniform protective coating of steel surface irregularities caused by mill scale.
2. Controlled and positive drying permits shipment of fabricated parts to the job site within 24 hours after priming, in all seasons of the year.
3. Standard shop practice for thorough cleaning of metal surfaces before priming may be followed without impractical or costly methods of surface preparation.
4. Provides optimum protection against metal corrosion during shipment and erection; also serves as the foundation coat for the field painting system.
5. In addition to meeting ASTM Specification D-234-48 and Federal Specification TT-O-369 covering Raw Linseed Oil, XLO Structural Steel Primer provides a plus in drying over specification requirements.

ONE OF the most remarkable feats in modern bridge-building was the modernization of the Illinois Central's Ohio River bridge at Cairo, Ill., at a cost of $6,500,000.

● **This new structure** was fabricated and erected by the American Bridge Division, United States Steel Company. Twelve new spans, ranging from 197 to 518 feet in length, were erected alongside the earlier spans and moved into place on the old piers, with a minimum interruption of traffic. This spectacular task required nearly a year and a half.

● **During most of this period,** Pittsburgh's new X-L-O Structural Steel Primer, used as an initial protective undercoating, helped to safeguard these new steel spans against corrosion. This new kind of protective coating is derived from special linseed oil, combined with red lead and iron oxide pigments. It is also furnished with 100% red lead, if desired. A variety of IRONHIDE coatings, suitable for field application, is also available.

● **For further information,** write, wire or phone Pittsburgh Plate Glass Company, Industrial Sales Division, 2000 Grant Building, Pittsburgh, Pa., or any of the following factories nearest you.

PITTSBURGH PLATE GLASS CO., Industrial Paint Div., Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Springdale, Pa.; Atlanta, Ga.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Div., Detroit, Michigan. The Thresher Paint & Varnish Co., Dayton, Ohio. Forbes Finishes Division, Cleveland, Ohio. M. B. Suydam Division, Pittsburgh, Pa.

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

(Continued from page 82)

yet ready. Calcium carbonate then coating many pipe walls was dissolved, and tubercaulation started. Now, the problem is to restore and retain calcium carbonate saturation equilibrium. Treating two-thirds of the water with alum and one-third with ferrous sulfate and lime seems to do the job.

Coal tar coatings that have disintegrated in Chicago mains have become soft and blistered—so that they can be rubbed off with the fingers. Mr. Baylis acknowledges cement-lined cast iron pipe has "hope of being better than coal-tar" but says "the significant fact is that no artificially-applied pipe coating will last indefinitely."

These statements appeared in an article by Mr. Baylis in the most recent issue of "Pure Water," publication of Chicago's water purification division. He also read a paper on his findings at the recent meeting of the New England Water Works Association.

Only well-hydrated limes prevent plaster blisters

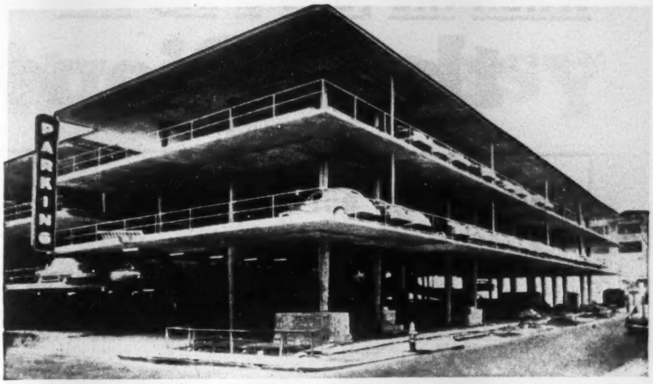
A recent National Bureau of Standards study of blister-type failures of plaster finish coats concludes with this advice to builders: don't use regularly hydrated (normal) dolomitic limes in making plaster to avoid blisters.

NBS recommends many acceptable finishing limes—highly hydrated dolomitic lime (also known as special, autoclaved, or pressure-hydrated), plastic high-calcium hydrated lime, sound quick-lime, and ready-mixed quicklime putty.

Previous investigations by the bureau had shown that regularly hydrated limes contain a substantial percentage of unhydrated magnesia. This gradually takes up moisture and expands after the plaster is in place, causing the blister failures. Overnight soaking of the limes before use hasn't done much good in the past, but it was thought by some that extended soaking would answer the problem.

Not so say NBS researchers L. S. Wells, W. F. Clarke and E. M. Levin, who've just studied this problem thoroughly. An aging period of 7 to 8 months would be required, altogether too long for practical purposes. You've got to use the more expensive well-hydrated limes to be reasonably sure of avoiding plaster blisters.

A 14-page report of the latest investigation, "Effect of Aging of the Soundness of Regularly Hydrated Dolomitic Lime Putties," is available from the Government Printing Office, Washington 25, D. C. for 15 cents.



New Orleans parking garage, built in 30 units, cost only $400 per car space. Unit is a 32' slab cantilevered on columns spaced 16'. Overlapped cantilevers between units span 32', make space for another car. In cross section slabs are 66'3", columns spaced 20'. Hinging columns at base eliminated bending moment, allowed tapering to gain space. Laurence G. Farrant, consulting engineer; Diboll-Kessels, associate architects-engineers; G. F. Favrot & Co., contractors.

A car for every 200 sq. ft. — all within 3 minutes of the street

Designed to provide quick-access parking for as many cars as possible within its site dimensions, this garage was built at extremely low cost in a series of 30 independent units, each a flat slab cantilevered on tapered columns hinged at their base, with overlapped cantilevers doubling the span between units.

Implicit in clean, light, economical construction like this is the closely calculated use of reinforcing steel in concrete of predetermined strength.

Such material is available in ready-mixed concrete of uniform batch design, processed in truck mixers or agitators which have the capacity, drum speed and mixing action, and the accuracy of water control necessary to insure proper and complete mixing of every batch. Such truck mixers are identified by Rating Plate.

MIXER
AGITATOR

Look for this Badge of Dependability on Truck Mixers: You have a right to insist on this Rating Plate on any truck mixer that serves your jobs. It is available to all who comply with the quality standards established by the National Ready Mixed Concrete Association and the Truck Mixer Manufacturers Bureau.

These member manufacturers comply with Bureau standards:

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Pittsburgh, Pa.

CHAIN BELT COMPANY
Milwaukee, Wis.

CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.

THE JAEGER MACHINE COMPANY
Columbus, Ohio

THE T. L. SMITH COMPANY
Milwaukee, Wis.

WORTHINGTON PUMP & MACHINERY CORP.
Dunellen, N.J.

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FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS, TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING

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SPRAGUE & HENWOOD, Inc.
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When the job's a big one...

that Pioneer Edge

Plant turns out 2,800 yards daily for Falcon Dam

● Big things are happening down on the Rio Grande. Seventy-five miles below Laredo and twenty-five miles from the nearest railhead, work is underway on huge Falcon Dam . . . the greatest international project of its kind ever undertaken jointly by the United States and Mexico.

Before it's completed, this mammoth project will require 18,700,000 cubic yards of earth and rock fill, 420,000 yards of riprap, 17,500 tons of structural steel, and 261,000 cubic yards of concrete.

Because of its record for efficient and economical production, PIONEER equipment was chosen for the important job of supplying all sand and gravel for the concrete and various other uses.

Shown here is the specially designed plant which is turning out four sizes of washed material (-¾", -1½", -3", and 4M to 100M sand) at an average rate of 2,500 to 2,800 yards per day.

A big assignment . . . yes. But PIONEER equipment is accustomed to big assignments and takes them in stride. Be the job big or small, complicated or simple, the famous PIONEER EDGE means *extra* performance, extra profit to the owner.

BUY BOTH!
HIGHER OUTPUT
LOWER UPKEEP

Pioneer

Continuflo **EQUIPMENT**

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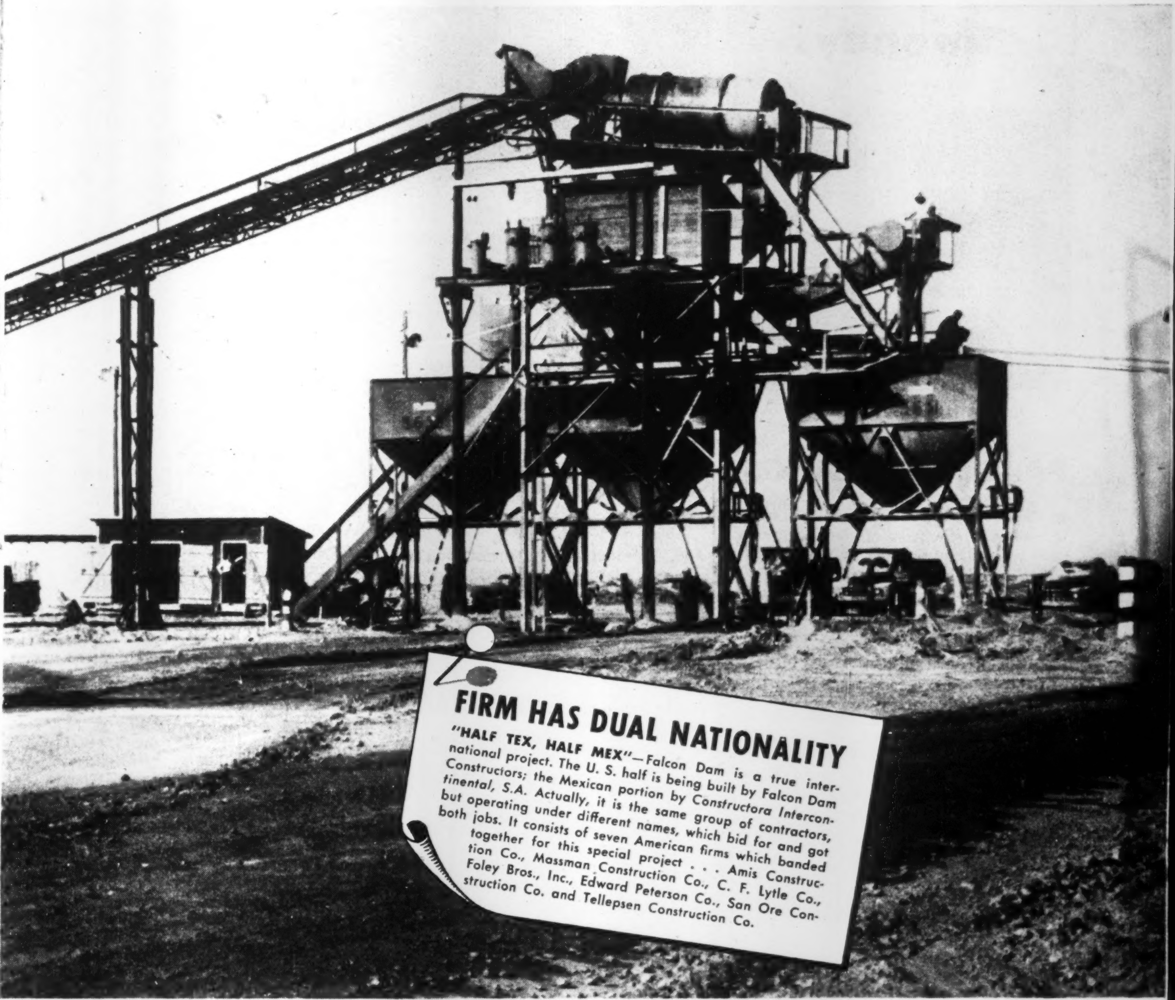

FIRM HAS DUAL NATIONALITY

"HALF TEX, HALF MEX"—Falcon Dam is a true international project. The U. S. half is being built by Falcon Dam Constructors; the Mexican portion by Constructora Intercontinental, S.A. Actually, it is the same group of contractors, but operating under different names, which bid for and got both jobs. It consists of seven American firms which banded together for this special project . . . Amis Construction Co., Massman Construction Co., C. F. Lytle Co., Foley Bros., Inc., Edward Peterson Co., San Ore Construction Co. and Tellepsen Construction Co.

Have that Pioneer Edge on your side

Crushers, feeders, conveyors, screens, complete plants...PIONEER Equipment offers you an operating edge that means *extra* production from each dollar invested. This is the EDGE that helps you finish jobs ahead of schedule, that so often changes loss to profit. Before you bid, *be sure you have the* PIONEER EDGE *on your side!*

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☐ MECHANICAL FEEDERS
☐ VIBRATING SCREENS
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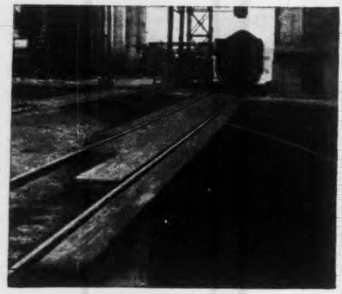

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PANEL CROSSINGS

● There are good reasons why Koppers Creosoted Grade Crossings for plant railroad tracks are preferred by plant managers who are economy-conscious—

THEY LAST LONGER. Sturdily built and decay-resistant, Koppers Creosoted Grade Crossings do not sag, spall, "washboard," or disintegrate under heavy wheel load.

THEY ARE EASY TO INSTALL. Individual panels come completely assembled, so that they can be handled and placed by workmen. The assembly is securely fastened to withstand vibration, swelling or shrinking of the wood. And, when the track is worked, assemblies can be removed and replaced, using all the original material.

THEY COST LESS. The ease of installation and maintenance and the exceptionally-strong construction of Koppers Creosoted Grade Crossings mean that, in the long run, they cost materially less.

For additional information write for a free copy of our new folder, "Koppers Grade Crossings." Address Dept. EN-10.

KOPPERS COMPANY, INC.
Pittsburgh 19, Pa.

KOPPERS
KOPPERS
PRESSURE-TREATED
WOOD

MEN AND JOBS

E. SHERMAN CHASE, Metcalf & Eddy partner, elected president of FSIWA.

Chase elected head of sewage group

E. Sherman Chase, partner in the firm of Metcalf & Eddy, assumed presidency this week of the Federation of Sewage and Industrial Wastes Association at its silver anniversary meeting in New York. Celebrants of the federation's first quarter-century of progress saw Chase take the reins held last year by Prof. Earnest Boyce of the University of Michigan.

Chase was a partner in the Boston sanitary engineering firm a year before the fast-growing federation he now heads came into being. In recent months, three projects he's had successfully under way are the report to Los Angeles on how to dispose of its sewage, the controversial Raritan Valley (N. J.) trunk sewer, and complete plans and specifications for the $26-million Miami, Fla., sewerage scheme. (See respectively ENR Aug. 21, p. 32, May 29, p. 58, and Mar. 20, p. 48.)

Before joining his present firm in 1920, Chase was with the New York State Department of Health, with N. Y. City's Borough of Richmond, and with Hering & Fuller as resident engineer on sewerage construction at Reading, Pa.

A native Bay Stater, Chase was graduated from MIT in 1907.

He is an honorary member of England's Institute of Water Engineers and a past president of the New England Water Works Association.

Ritter joins NYU faculty to increase roads courses

Prof Leo J. Ritter, Jr., is joining the faculty of New York University's College of Engineering as associate professor of transportation engineering, it was announced last week.

Professor Ritter will conduct courses in highway engineering in the department of civil engineering.

His appointment is part of a program for enlarging the offerings of the college in the field of highway engineering. The extended program is in response to student interest in this field, created by the present extensive parkway and highway construction projects.

During the last year Professor Ritter, under a Fulbright award, lectured in highway engineering and soil mechanics at the University of the Philippines.

Recently he was associate professor of civil engineering at the University of Florida. He has also held faculty posts with Mississippi State College and the A & M College of Texas.

A native of Mexico, Mo., Professor Ritter received his bachelor's degree in civil and irrigation engineering from Colorado A&M College.

He is co-author with R. J. Paquette of the book, "Highway Engineering," and is the author of numerous articles and papers on soil mechanics and highway engineering.

Professor Ritter is a member of the ASCE, the American Association of State Highway Officials, and Florida Engineering Society, and the Highway Research Board.

What price graduates?

High salaries were offered this year to June graduates of the California Institute of Technology, Professor Donald S. Clark, Director of Placements, reported last week.

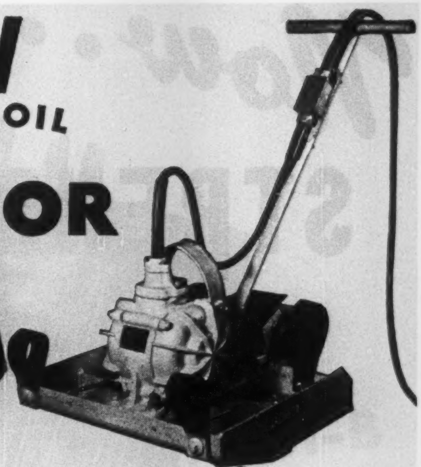
Offers averaged $5 to $60 per month more than last year, he said. Salaries as high as $527 were offered students with the bachelor of science and master of science degrees. Top figure for the advanced engineers degree was $585, while the Ph.D. degree commanded salaries to $750. The median monthly salary for bachelors was about $340, for masters $485, for engineers $475, and for Ph.D.'s $495.

(*Continued on page 92*)

THE JACKSON

ASPHALT-GRANULAR SOIL

COMPACTOR



NOW VASTLY MORE POWERFUL, FASTER

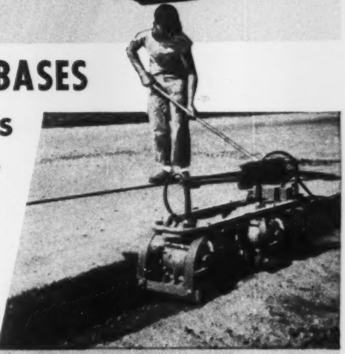
Quickly INTERCHANGEABLE BASES

OF 12" TO 24" WIDTHS

The new, heavy-duty, exceedingly powerful vibratory motor now incorporated in the JACKSON COMPACTOR has stepped up its walking speed and power greatly. It will compact granular soils at optimum moisture to specified density in depths of 8 to 12" at the rate of 2400 sq. ft. per hour.

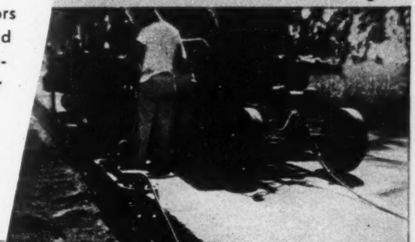
For compacting granular soil in sub-bases of concrete floors, in bridge approaches, close to abutments, and for compacting blacktop mixtures in pavement widening and patching, paving drives, walks, railway platforms and crossings, this machine with its quickly interchangeable bases, is the most convenient, mobile and efficient time and money saver on the market. A tandem version utilizing two heavy-duty compactor motors mounted on bases of proper width is amazingly efficient and economical for compacting granular fill in trenches, in pavement widening operations, to provide a stabilized base for the blacktop widening strip.

Operated by a Jackson Power Plant mounted on auto trailer with means of quickly picking up and lowering the compactor. See it at your Jackson Distributor, who has it both for sale and for rent, or write for complete details.



▲ Tandem Compactor stabilizing granular sub-base for blacktop pavement widening strip.

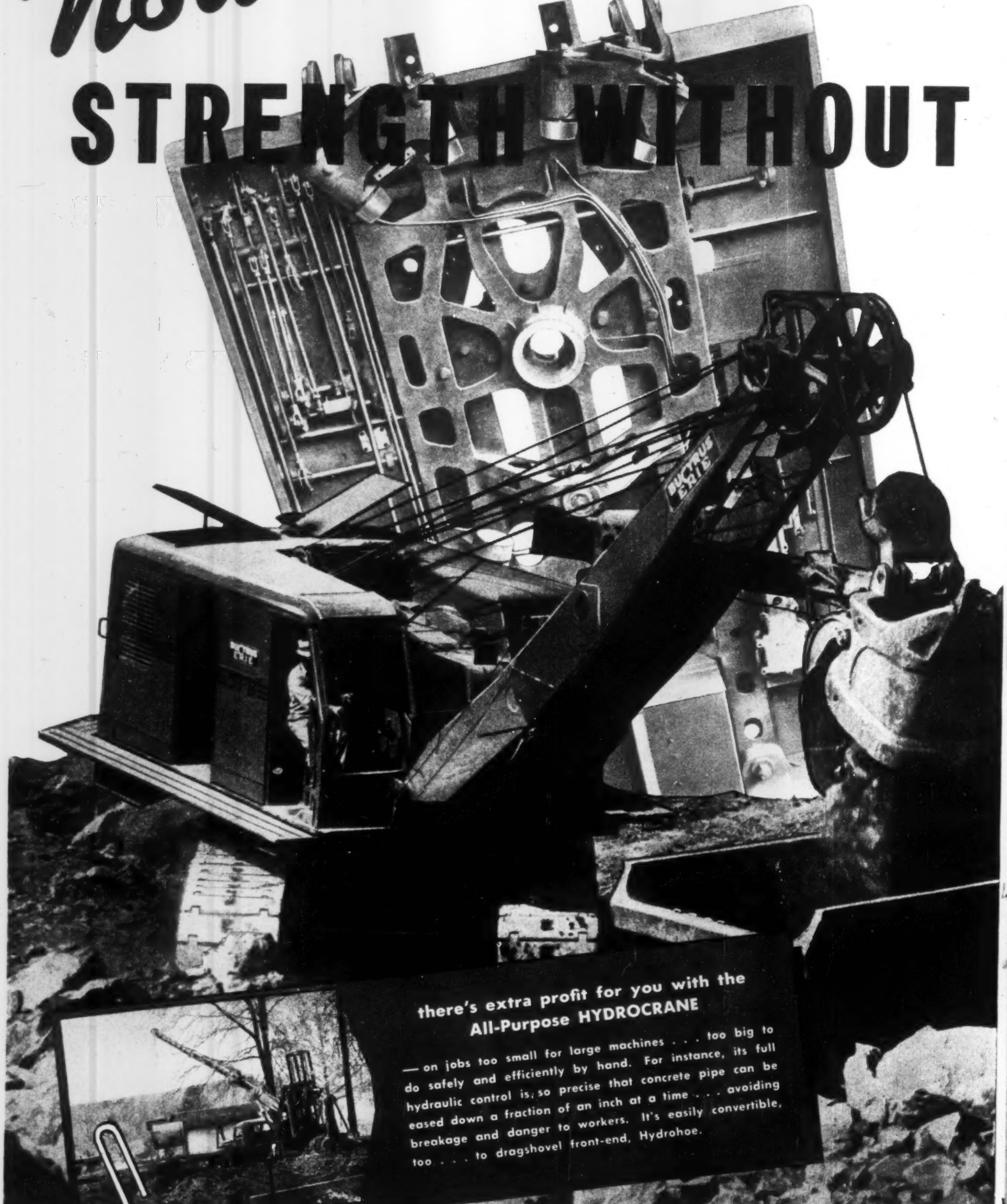
Tandem Compactor easily keeps up with spreader and is controlled by spreader operator. No additional labor is required. ▼



JACKSON VIBRATORS, Inc.
LUDINGTON
MICHIGAN

Now...

STRENGTH WITHOUT



there's extra profit for you with the All-Purpose HYDROCRANE

— on jobs too small for large machines . . . too big to do safely and efficiently by hand. For instance, its full hydraulic control is so precise that concrete pipe can be eased down a fraction of an inch at a time . . . avoiding breakage and danger to workers. It's easily convertible, too . . . to dragshovel front-end, Hydrohoe.

DEADWEIGHT . . .

counts more than ever

and it's yours with Bucyrus-Erie's 2-yd. **51-B**

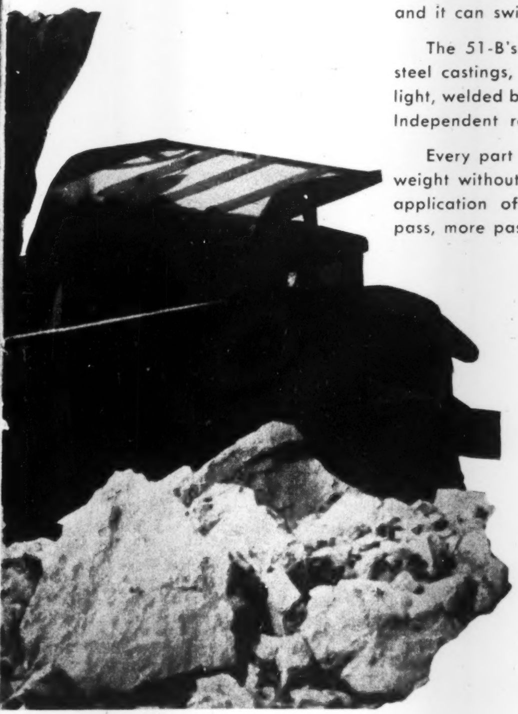
**3/8 to 4-yd. Gasoline,
Diesel, Electric
Excavators**

HERE'S an excavator that combines built-in durability with weight economy to give bigger output with less maintenance.

For instance, the 51-B's revolving frame is a single box-section casting of annealed steel . . . specially developed and cast by Bucyrus-Erie. This solid "backbone" provides real rigidity for machinery alignment — yet holds weight to a minimum. As a result, vibration is minimized in the 51-B . . . and it can swing fast, work at a profit-building pace.

The 51-B's truck frame and caterpillar side frames are single annealed steel castings, too — for strength with light weight. Boom and handle are light, welded box-sections that provide ample strength for all working stresses. Independent rope crowd eliminates the need for heavy boom machinery.

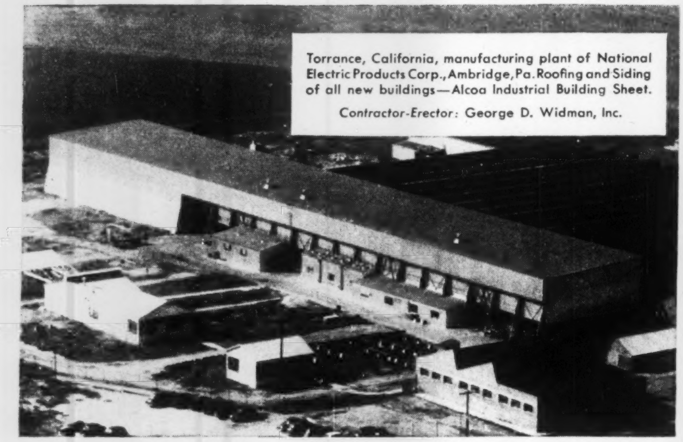
Every part of the 51-B reflects advanced engineering that cuts out dead weight without compromising strength. This means you get most economical application of power and lowest upkeep — with bigger payloads every pass, more passes every day. 66E52C



BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

*Most Compared
Most Preferred*



Torrance, California, manufacturing plant of National Electric Products Corp., Ambridge, Pa. Roofing and Siding of all new buildings—Alcoa Industrial Building Sheet.

Contractor-Erector: George D. Widman, Inc.

You can build FASTER with ALUMINUM!

Here's how National Electric Products Corporation put Alcoa Building Sheet to work. When facilities had to be expanded . . . fast—secondary buildings were erected to house the generators, pumps and compressors, freeing the main structure for additional electroplating and processing equipment. All the additions were built faster . . . built stronger—with Alcoa *Aluminum* Building Sheet.

Alcoa Aluminum Building Sheet cuts construction costs . . . goes up faster, requires fewer man hours of labor . . . *and lasts longer!* Lightweight Alcoa Building Sheet (only 56 pounds per square) reduces dead load. Low in first cost, lower still in future maintenance expense, it piles up big savings all the years of its extra-long life.

FACTS FOR ENGINEERS

Alcoa Industrial Building Sheet may be erected over steel or wood; and there is a fastener for every type of job.

Lengths: 5 to 12 feet.

Widths: Roofing, 35 inches—Siding, 33¾ inches (32 inch coverage).

Thickness: .032 inches—equal to 22 U. S. Gauge.

For complete engineering and application details, write for booklet AD-167.

ALUMINUM COMPANY OF AMERICA
806-K Gulf Building • Pittsburgh 19, Pa.

ALCOA
INDUSTRIAL BUILDING SHEET

MEN AND JOBS

HARRY E. SQUIRE, retiring chief harbor engineer for the city of San Francisco.

Harbor engineer retires after 35-years service

After 35 years of service with California's Board of State Harbor Commissioners, the last four as chief harbor engineer for San Francisco, Harry E. Squire will retire on Nov. 1.

Graduated from the University of California in 1906, Squire went to work briefly for the Southern Pacific Railroad. Then he started his long career on the waterfront as engineering assistant to the superintendent for Scofield Construction Co., contractor for the Navy's Mare Island Dry Dock No. 2. When the dry dock was completed in 1909, he went to Puget Sound as engineer and superintendent for Erickson Construction Co., contractor for Dry Dock No. 2 at Bremerton, Wash. He returned to San Francisco as engineer and superintendent for the San Francisco Bridge Co. on various harbor jobs, including the dredging of Mare Island channel across San Pablo Bay, dredging of Oakland Harbor, construction of the Key Route Mole, and Hunters Point Dry Dock.

Squire became assistant chief engineer for the Board of State Harbor Commissioners in March, 1917. In May, 1918 he went to Washington, D. C., to serve as chief construction engineer for the concrete ship department of the U. S. Shipping Board, returning in September, 1918.

He became chief harbor engineer on Nov. 10, 1948. Under his supervision much of the board's first postwar $10-million modernization program was completed and the second $10-million improvements planned.

(*Continued on page 99*)

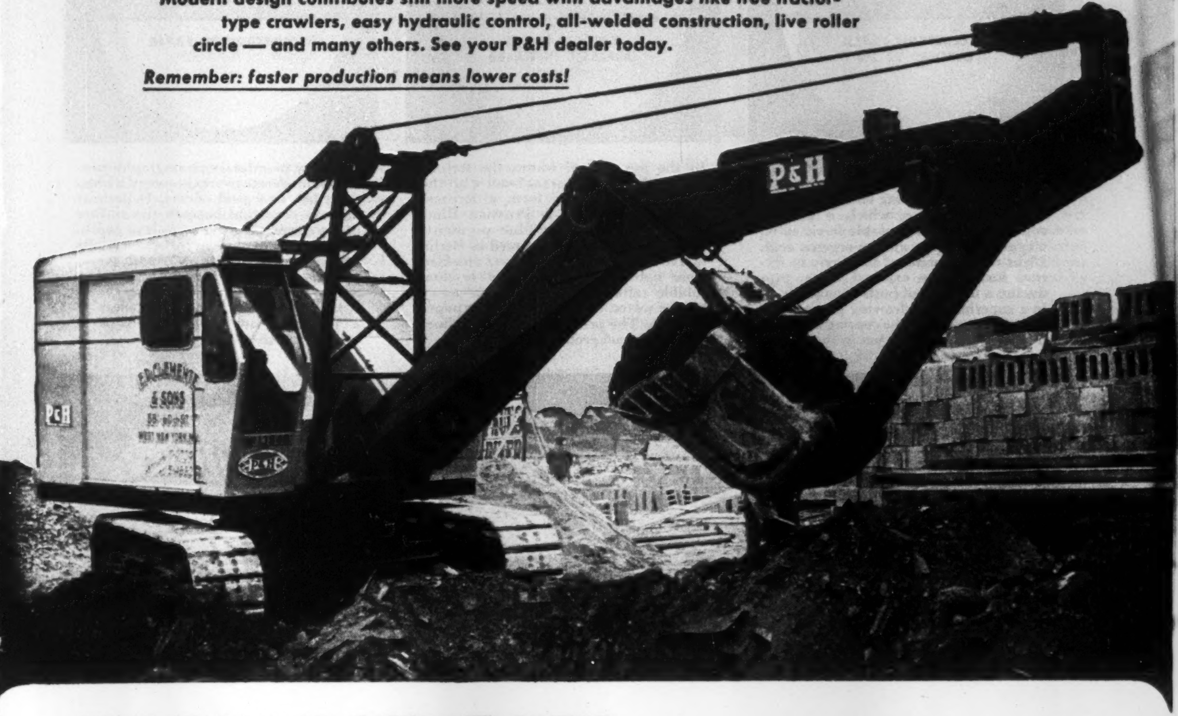
P&H STABILITY

MEANS FASTER DIGGING!

Whatever the attachment . . . shovel, dragline, hoe, clamshell or pile driver . . . P&H gives you more production. Why? Because P&H's lower center of gravity and better weight distribution let you apply more power at the business end. You can put "more on the hook" — dig harder — work faster!

Modern design contributes still more speed with advantages like true tractor-type crawlers, easy hydraulic control, all-welded construction, live roller circle — and many others. See your P&H dealer today.

Remember: faster production means lower costs!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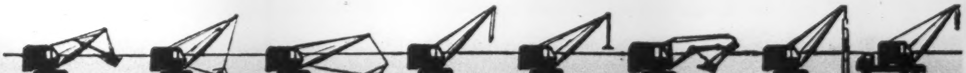
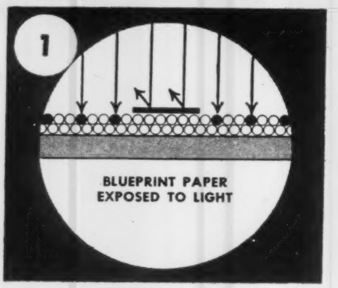
YOUR P&H DEALER IS READY WITH ALERT SERVICE AND GENUINE P&H PARTS TO KEEP YOUR JOBS ON SCHEDULE.

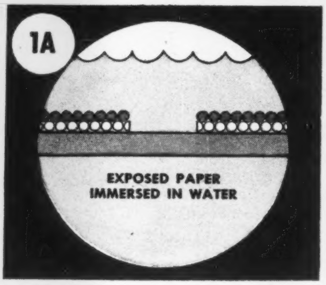
P&H Power Shovels and Truck Cranes are more easily converted for various types of service because hoist and digging drums are on one shaft. The need for auxiliary shafts and gearing is eliminated. Write for literature on the size you need. Sizes up to 8 cu. yds., gasoline, diesel or electric power.

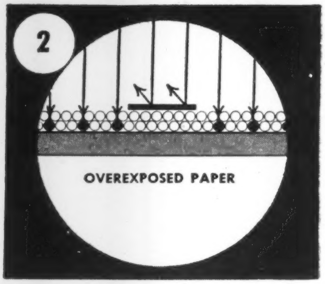
the P&H Line


SHOVEL
DRAGLINE
BACKFILLER
CRAWLER CRANE
MAGNET CRANE
TRENCH HOE
PILE DRIVER
TRUCK CRANE

Why is a blueprint


1
BLUEPRINT PAPER EXPOSED TO LIGHT


1A
EXPOSED PAPER IMMERSED IN WATER


2
OVEREXPOSED PAPER

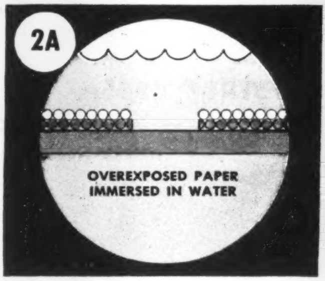
Simplified diagram of enlarged cross section of blueprint paper shows surface particles of the coating being struck by light. The coating, which is pale in color, contains two soluble ferric salts: a cyanide complex and an organic acid. Light reduces some of the ferric to ferrous ions in the exposed areas, producing a mixture of both. Opaque lines in a superimposed drawing prevent the light from reaching the coating beneath, as shown by the black bar in the center.

In the presence of water, the ferrous ions in the exposed areas react with the cyanide complex to form a ferrous-ferricyanide, which is Prussian Blue. (This is the famous blue pigment, insoluble in water, discovered in Berlin in 1704.) The areas that were shielded from light contain only the original soluble salts. These are washed away by the water, exposing the white paper beneath. The print then has white lines on a blue background.

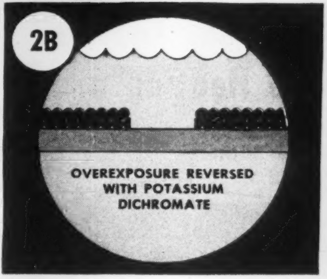
Contrary to ordinary photographic processes, moderate overexposure of a blueprint has two good effects. It permits light to penetrate beneath the surface of the coating and thus to act in depth. It also reduces more of the surface salts from the ferric to ferrous condition, including the cyanide complex. But carried to an extreme, overexposure causes light to penetrate the opaque lines of a drawing with a resultant loss of contrast in the developed print.

K+E
CHALLENGE
"EIGHTY"
BLUEPRINT
PAPER
444LXX 36
83
KEUFFEL & ESSER CO.
MORE VIVID WHITE LINES! MORE INTENSE BLUE!

BLUE?



When a moderately overexposed print is immersed in water, the ion mixtures react together. However, the colorless ferrous compounds that are formed on the surface of the coating cover up the layers beneath, and tend to hide the Prussian Blue color which has formed in the bottom layers. The print, at this stage, will have a grayish cast without full contrast.



Nearly every blueprinter, after washing the prints, immerses them in a solution of potassium dichromate, or peroxide. These are oxidizing agents that reverse the effect of too much light, changing a proportion of the ferrous ions back to ferric ions. In this way, with the help of overexposure, the entire thickness of the coating can be made effective in forming Prussian Blue. A deep, rich blue, contrasty print results.

● As one of the oldest reproduction processes, blueprinting has undergone little development until recent years. CHALLENGE* blueprint papers embody every valuable advance made in this time and, in addition, are produced with the extra skill and care that go into all K&E products. The presence of more colloidal Prussian Blue, plus a pre-coating process, enable CHALLENGE papers to provide more vivid white lines against a background of deeper, more intense blue.

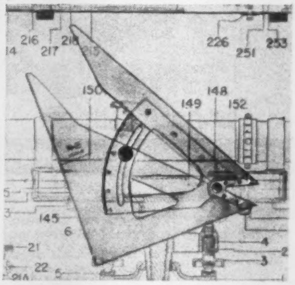
Other outstanding K&E reproduction materials include HELIOS† dry developing diazo papers, cloths and films; ONYX* moist developing diazo papers; MADURO† brownprint papers and cloths; DUPRO† reproduction tracing cloth; and PHOTACT† reproduction papers, cloths and films. Ask your K&E Distributor or Branch for full information on what these various K&E reproduction materials can do for you.

*Trade Mark †Trade Mark®

K+E

The Right Angle

For new ease in measuring straight, curved or irregular lines on maps, plans and charts use one of these precision built Plan and Map Measures. You can take off quantities with them and, with the models calibrated to ¼″ or ⅛″ scale, you can read distances directly in feet. Instantly re-set to zero by pressing the stem.

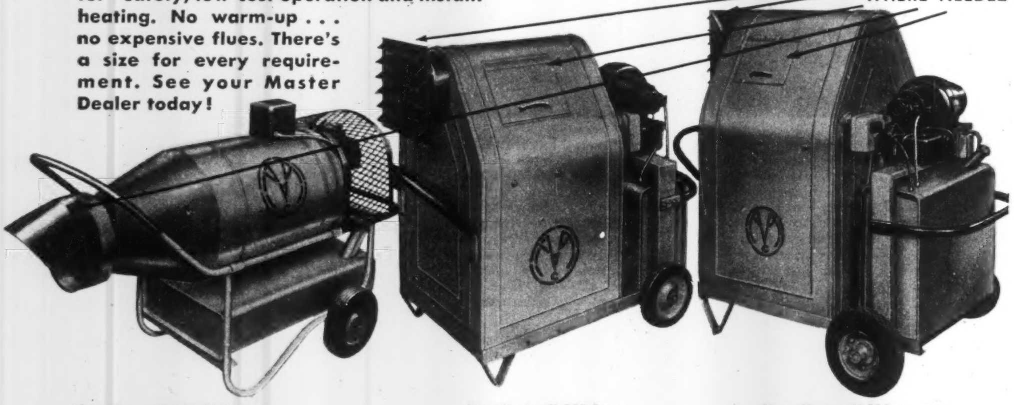


A triangle that gives you a straight edge that can be set at any angle! The TRI-TRACTOR*, basically a right triangle, also has a protractor element calibrated in half degrees. Its hypotenuse can be fixed at any desired angle with respect to the base line. Made of transparent plastic. Comes with 8″ or 10″ base.

3 New SUPER SPACE HEATERS designed for your job

Give you *Fast Safe Heat* for Drying, Thawing, Preheating, Spot Heating, Space Heating and many other uses.

These new Master Space Heaters are tops for *safety, low-cost operation and instant heating. No warm-up . . . no expensive flues. There's a size for every requirement. See your Master Dealer today!



New Master B-140 high output for smaller heating jobs.

New Master H-231 for larger heating jobs.

New Master H-350 to meet large heating output requirements.

NEW MASTER SPACE HEATER SPECIFICATIONS

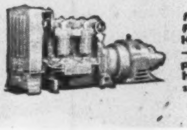
MODEL NO.	CAPACITY	*SAFETY	BURNER	FUEL	FUEL CONSUMPTION	HOT AIR OUTPUT	CONTROLS	SIZE	WEIGHT
B-140	140,000 BTU per hour	Indications of carbon monoxide in the exhaust gases of the kerosene fueled Master Space Heater was less than 0.001 per cent by volume . . . as tested by an independent testing laboratory. According to accepted standards this content is one tenth of the amount considered hazardous.	Approved by Underwriters' Laboratory	Kerosene, No. 1 Fuel Oil or No. 2 Fuel Oil	1 gal. per hr.	800 C.F.M.	Fuel tank and burner safety control, solenoid pump control, thermostat control available extra.	W-24½" L-58" H-34"	145 lbs. less fuel
H-231	241,000 BTU per hour				1.65 gal. per hr.	1500 C.F.M.	Thermostat for full automatic temperature control. Fuel tank and burner safety control. Over-heat safety control.	W-29⅜" L-51¼" H-45¾"	295 lbs. less fuel
H-350	350,000 BTU per hour				2.5 gal. per hr.	2500 C.F.M.		W-31½" L-58" H-58"	360 lbs. less fuel

MASTER

BETTER PRODUCTS FOR BIGGER PROFITS

MASTER VIBRATOR COMPANY
101 Davis Avenue, Dayton 1, Ohio

Master portable generator plants —heavy duty dependable continuous and standby plants ½ KW to 100 KW



Master Power-Blow Hammer —world's most powerful electric hammer and spade

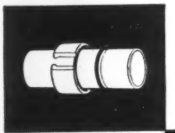
Gasoline Engine Backfill Tamper

Concrete surfacing attachments for vibrators

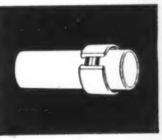
→ 3" ←
Only this much infiltration in a 5-mile line . . .

. . . with TRANSITE Sewer Pipe and its "*packaged*" RING-TITE JOINT

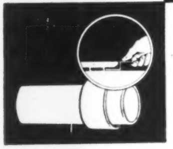
HERE'S HOW THE RING-TITE JOINT WORKS:



◀ **Start of assembly.** Two rubber rings and a Transite sleeve (cut away to show position of the rings) are placed on one of the two pipe ends to be joined.



▶ **Final position.** Sleeve centered over both pipe ends, with the rubber rings tightly compressed between sleeve and pipe.



◀ **Checking joint** for proper assembly. This is done with a simple gauge immediately after the joint is made . . . *before backfilling.*

*Transite is a registered Johns-Manville trade mark

The photograph above shows the total amount of infiltration—through manholes as well as pipe—in a recently installed sewer system consisting of 5 miles of 6", 8", 12" and 18" diameter Transite Sewer Pipe. So little ground water entered the system that the only practical way it could be measured was by means of a 3" pipe inserted in the Parshall flume as shown here!

Here is visual proof that Transite Sewer Pipe with its Ring-Tite Joint cuts ground water infiltration to a minimum—in this case less than 3.4% of the specified allowable of 600 gallons per inch of pipe diameter, per mile, per day.

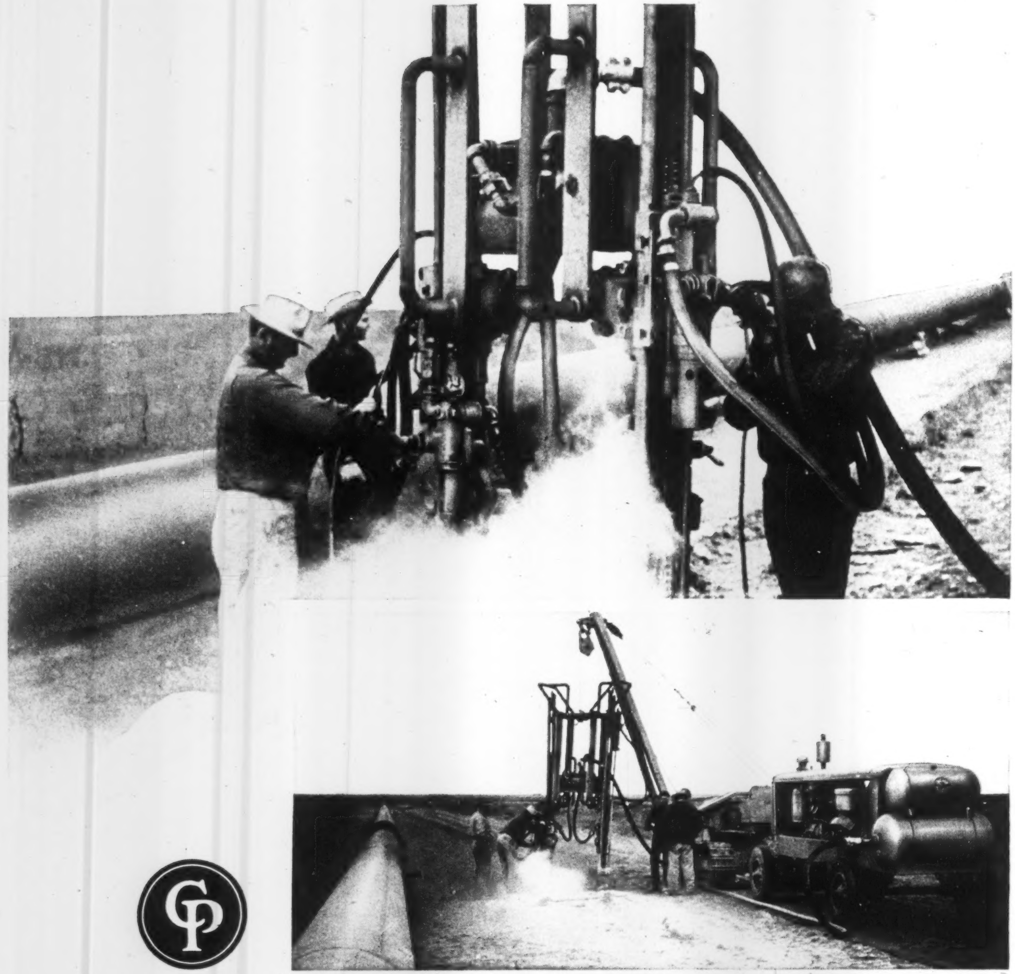
The Ring-Tite Joint, standard on all sizes of Transite Sewer Pipe, has other important practical advantages, too. Actually a factory-made joint, it can be assembled in a fraction of the time required for making ordinary sewer pipe joints. No jointing compounds are used—just a simple assembly operation with a mechanical coupling puller does the job. And you can check each joint for proper assembly as soon as it is made—*and backfill immediately!*

Transite Sewer Pipe may also help you save in other ways. Its long 13-foot lengths mean *fewer* joints to make—thus further reducing installation expense. And its high flow capacity (Manning's n = .010) often permits flatter grades and shallower trenches—particularly important where pipe is laid at or below the ground water line or where rock excavation is required.

For more facts about this asbestos-cement pipe and how it can save money for you, write for Folder TR-103A. Address Johns-Manville, Box 60, New York 16, N.Y.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville TRANSITE SEWER PIPE



TRENCHDRIL SPEEDS PIPELINE LAYING

The new CP Trenchdril is a highly mobile, complete unit. Suspended from a tractor boom, and mounting two CP-70N Drifters for parallel drilling, it is a tremendous time-saver in ditching for oil and gas transmission lines.

Frame is of steel plate construction . . . exceptionally rigid . . . incorporates built-in receiver with drain plug and separate line oilers with individual shut-off valves . . . tubular cross members mount 4-inch saddles with 7-inch cone for greater stability.

Drill Carriages are identical to those used on the CP heavy-duty G-300 wagon drill . . . tubular construction . . . centralized controls . . . 91" feed travel; longer feeds available.

Drifters are CP-70N's — 4-inch drifters widely used because of their exceptional drilling speed, powerful rotation and hole-cleaning capacity.

Operates from CP Portable Compressor — a rugged unit that will follow a tractor anywhere.

Write for further information.

CHICAGO PNEUMATIC TOOL COMPANY
General Offices 8 East 44th Street, New York 17, N. Y.

Fiftieth
ANNIVERSARY

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

O'Connell of Turner elected to high post

H. C. Turner, Jr., president of the Turner Construction Company, has announced the election of N. B. O'Connell as a vice-president of the company. O'Connell, who has been general superintendent for the company in the New England territory, will have general management of all projects handled by the New York office, other than special projects. He assumed his new duties last week.

"O'Connell has had a very long and varied experience with the company dating from 1920," said Turner. "Serving as superintendent he has built many of the larger structures constructed by our company and, during the war period, he served with great distinction as general superintendent on the Air Depot at Rome, N. Y., as manager of operations on the Higgins Aircraft project in New Orleans, and as project superintendent on the General Cable contract in Rome, N. Y.

"Since July, 1946, he has been serving as general superintendent, responsible for the supervision of field construction on all projects, in the Boston territory. He brings to his task not only experience, but the force, drive and determination which qualify him for leadership."

Pittsburgh firm appoints new chief engineer

Walter R. Wolff has been appointed chief engineer for Crump, Inc. The appointment was made last week.

Wolff is joining the company after six years in a similar capacity with the Westmoreland Construction Co., of Greensburg, Pa.

A native of Pittsburgh, Wolff is a graduate and registered professional civil engineer. He began his engineering career with the Truscon Steel Co., and was associated with Truscon at its Youngstown Home office and Toledo, Detroit and Pittsburgh branch offices.

Registered engineers now number 174,000

The number of professional engineers registered by the state licensing boards of this country now is up to 174,000, a gain of 9,000 over last year.

This estimate was made by T. Keith Legare, executive secretary of National Council of State Boards of Engineering Examiners, in his report to the council's annual meeting at Denver.

a telescoping canopy door that meets unusual weather conditions

Whether it's
WEATHER CONTROL—
or any other
fabricated steel problem
—call on *INTERNATIONAL!*

Strict requirements—unusual demands—are regularly specified for telescopic canopy doors. Such entrances must frequently function in extreme conditions of dust, wind, snow, sleet and low temperatures. Single sections—or the entire expanse—must operate regardless of outside conditions.

International Steel Company's industrial door division meets the challenge. Continuing care-free service of the finished entrance after years of hard usage is proof of International's ability to meet the most complex conditions.

Whether it be an unusual door problem, or *any* other type of complicated steel fabrication, International Steel has proved again and again it can do a job. Whatever your structural steel problem, call on International Steel. Write, wire, or phone the Special Projects Director—give him all details—and International will be ready to go to work for you.

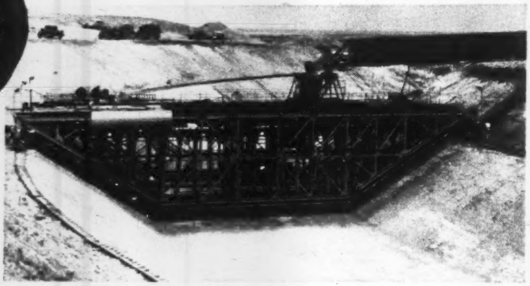
INTERNATIONAL
Steel Co.

STRUCTURAL STEEL
INDUSTRIAL DOORS
REVOLVING DOORS
STEEL BUILDINGS

1907 EDGAR STREET
EVANSVILLE 7, INDIANA

QUESTION: How many feet of canal can be made?

3 FEET PER MINUTE GUARANTEED!



THE RECORD SHOWS:

On Friant Kern Canal in the San Joaquin Valley, California, (lower section) Guntert and Zimmerman's trimmer and liner placed over 2000′ in one day and averaged 1500′ in 8 hours.

Improvements made on equipment for the lower section of the Friant Kern Canal increased production 100%; these improvements consisted of dual feed, constant vibration, automatic steering and leveling, and float pens reduced the operational costs proportionately.

This saving was made possible by the constant improvements made by Guntert and Zimmerman in their equipment.

EACH GUNTERT AND ZIMMERMAN MACHINE IS INDIVIDUALLY DESIGNED AND ENGINEERED FOR THE SPECIFIC NEED OF EVERY JOB

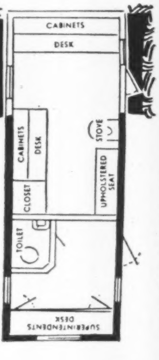
GUNTERT & ZIMMERMAN
STOCKTON, CALIFORNIA

CUSTOM DESIGNED
FIELD OFFICE TRAILERS

SOLD OR RENTED

Our Field Office Trailers (now in use in more than 19 countries throughout the world) are DESIGNED and CONSTRUCTED for use under all conditions. They are NOT converted House Trailers, but Heavy Duty trailers designed especially for the job of Field Office Trailers. Send for FREE BOOKLET of cutaway scale drawings, specifications and prices.
INFORMATION ON RENTAL CHARGES UPON REQUEST.

American Trailer Co., Inc.
4030 WISCONSIN AVE., N. W., WASHINGTON, D. C.
Mobile Homes Headquarters in our Nation's Capital since 1936



MEN AND JOBS

The total number of engineers registered by the state boards is 176,533, but Mr. Legare estimates that about 2,500 are duplications resulting from some engineers being registered in more than one state.

Careers . . .

• **Appointed**—Three new partners have been added to the firm of Camp, Dresser and McKee, consulting engineers of Boston. They are: **Roland S. Burlingame, Joseph C. Lawler** and **Darrell A. Root** . . . West Virginia's new road commissioner is **H. Keith Griffith,** succeeding Harry Radcliffe, who died last month . . . **Miles D. Catton,** director of development of the Portland Cement Association since 1949, had been appointed Assistant to the vice-president for research and development, effective last month . . . Succeeding **John E. Gragg** of Dallas, Tex., County Engineer is **R. H. Clinger.**

The Washington state offices of the Portland Cement Association announced the appointment of **Robert H. Lochow** as state highway paving engineer . . . **G. Brooks Earnest,** recently elected vice-president of the ASCE, was named to the presidency of Fenn College, Cleveland, last month.

Newly appointed to the post of division engineer of the Richmond, Fredericksburg and Potomac Railroad Company is **D. C. Hastings** . . . **Robert J. Painter** has been named executive secretary of the ASTM . . . **Richard Smykal,** Wheaton, Ill., builder, has been appointed acting superintendent of the state Division of Architecture and Engineering . . . **Vincent M. Hynes** has been appointed chief engineer of the public works department of Worcester, Mass. . . . Joining the firm of Parsons, Brinckerhoff, Hall & Macdonald, as an associate is **Curtis J. Hooper.**

• **Elected**—**A. G. Stanford,** consulting engineer of Atlanta, Ga., was elected president of the National Council of State Boards of Engineering Examiners at a meeting held in Denver last month . . . Elected chairman of the U. S. National Committee of the International Commission on Irrigation and Drainage, was **Walter E. Blomgren,** an engineer with the Bureau of Reclamation.

• **Retired**—**Charles H. Whitmore** retired last month from the California Division of Highways after 29 years of service with the state and half a century of engineering work.

10 Different Jobs for *UNIVERSAL* CONCRETE CRIBBING

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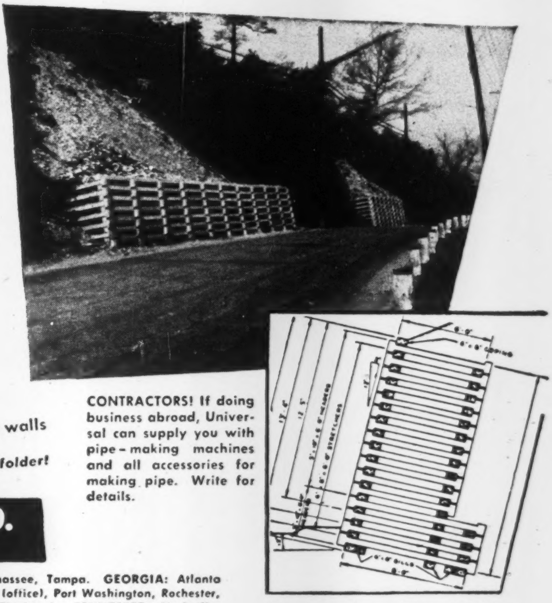

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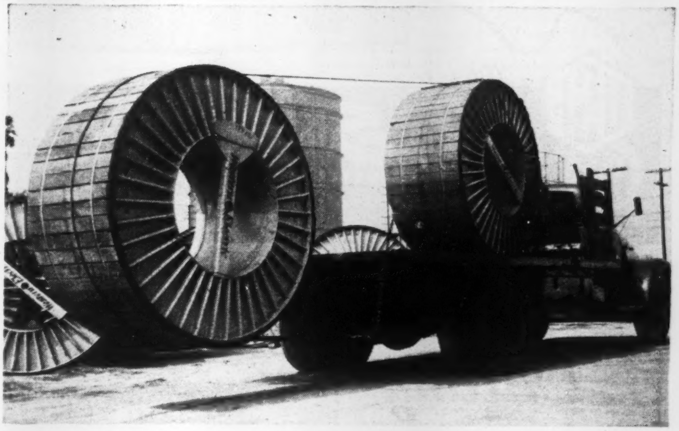

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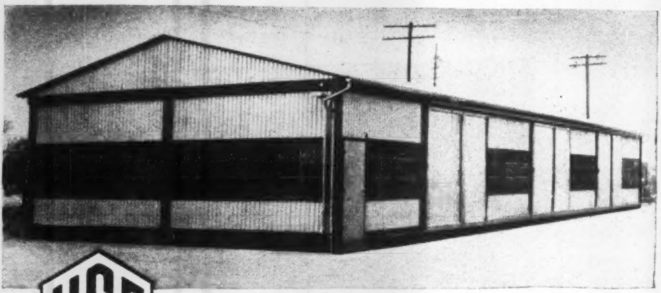

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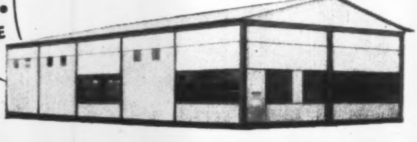

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OBITUARIES

Andrew W. Burns, Sr., 70, president-treasurer of A. W. Burns & Co., Columbus, Ohio, died Sept. 2. He had been a road contractor for more than 50 years.

George A. Mills, 67, consulting engineer for Sargent & Lundy, Chicago engineering firm, died Sept. 17 in Dixon, Ill.

Richard H. Phillips, 88, a San Antonio, Tex., civil engineer, died Sept. 22 in Cleveland, Ohio. He was chief engineer of the Louisiana Purchase Exposition in St. Louis in 1904. He was recognized as the oldest living graduate of the University of Missouri, where he received a civil engineering degree in 1886.

Kenneth H. Talbot, 65, concrete engineer, died Sept. 22 at Phoenix, Ariz. In 1943 he was awarded the Wason medal by the American Concrete Institute for development of improved methods for underwater placement of concrete in the construction of Navy drydocks.

William David Lee, 69, president of the Vancouver, B. C., Pile Driving and Contracting Co., died recently. Prior to going to Vancouver 25 years ago, he was a special engineer in charge of construction work on the prairies for the Canadian Pacific Railway.

A. W. Burns, Sr., 70, president and treasurer of A. W. Burns & Sons Construction Co., died at Columbus, Ohio, Sept. 2. He had been a road contractor in central Ohio for more than half a century.

Deane N. Harding, 65, a civil engineer in the Massachusetts state highway division, died in Boston Aug. 13. He served with the U. S. Marines in World War I.

Willett Angelo McArdle, 79, retired civil engineer, died in San Antonio, Tex., Aug. 16.

George L. Driscoll, 47, an engineer for the Massachusetts Department of Public Works for the last 25 years, died in Boston Sept. 14.

Carl Emil Green, 65, of West Hartford, Conn., died Aug. 6. He was president and treasurer of Green and Odegard Inc., general contractors. He was a graduate of Yale University, 1907.

Ward D. Carpenter, 69, retired civil engineer, died at Mt. Pleasant, S. C., Sept. 27. He was a 1906 graduate of Michigan State College. He did irrigation and drainage work in the Rio Grande Valley and later he was a construction engineer for the Standard Oil Co. in Louisiana, Arkansas and Tennessee. In 1942 he went to Charleston, S. C., as project engineer for the Santee-Cooper construction project.

Robert A. Heiser, 74, a designing engineer in Cleveland, Ohio, for the last 45 years, died there Sept. 25. For the last 15 years he had been with the H. K. Ferguson Co.

Ole Hansen, 70, an authority on bridge design and construction, died Sept. 30 at Ventnor City, N. J. His New Jersey bridges include the Stickel Memorial Bridge in Newark, the Kearny-Newark bridge, the Barnegat Bay bridge, five bridges across the Passaic River and four of the five bridges from the mainland to Absecon Island, where Ventnor City and Atlantic City are located.

Edward John Ryan, 67, of Vancouver, B. C., founder of the E. J. Ryan Construction Co., now Associated Engineering Co., one of the largest construction firms in Canada, died recently.

Aaron Parfitt, 84, one of the founders of Victoria, B. C.'s second oldest contracting firm, Parfitt Construction Co., died July 20.

Edward A. Schilling, 80, Detroit architect, for 21 years member of the City Plan Commission, died Sept. 11. He was head of the city zoning board of appeals, and one of the first advocates of Detroit's civil center water-front development project now becoming a reality.

Lyle E. Belknap, 61, civil engineer and road builder of St. Johns, Mich., died Aug. 15. He was a C.E. graduate of Michigan State College 1915. He was highway engineer of Clinton County for 44 years and of Gladwin County for 4 years.

John Schumann, 96, former New York State highway engineer, died Aug. 23 in Albany, N. Y. He retired in 1931 after more than 30 years in state service.

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28th VICTAULIC YEAR

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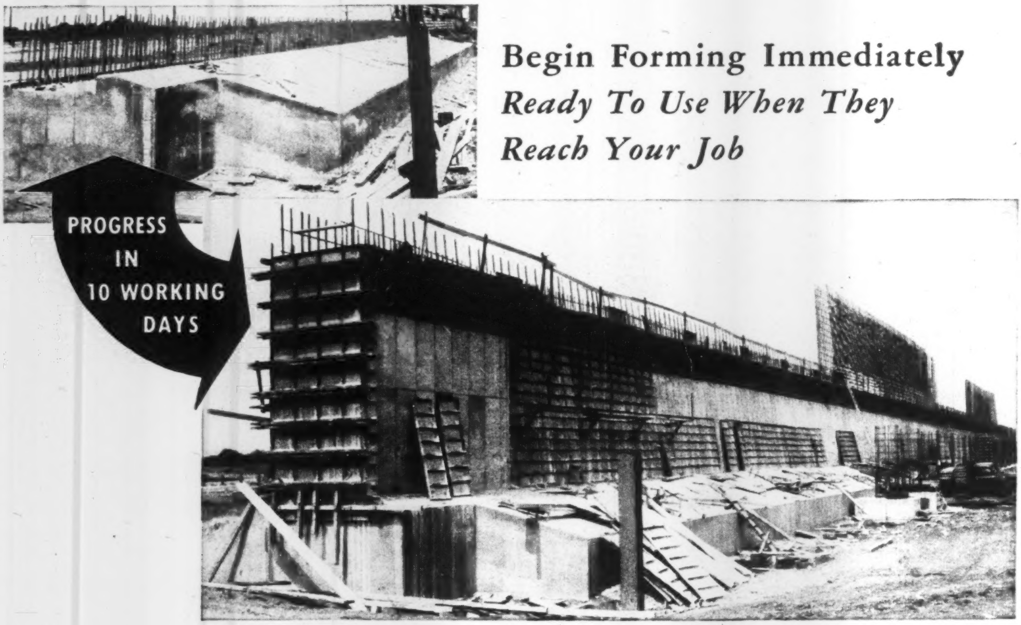

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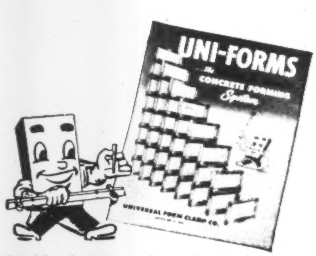

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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
November Materials, and Labor Prices will appear in November 6, 1952 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.81	$3.50	3.30	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.19	$0.19	$11.99
Baltimore	3.76	3.45	3.38	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.81	....	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	9.75
Boston	4.01	3.69	3.81	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.20	.22a	11.50h
Chicago	3.33	3.02	....	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.44/11.94
Cincinnati	3.61	3.40	3.40	2.09‡c	2.14‡c	2.14‡c	2.44‡^{e}	2.44‡^{e}	....	....	.21	.225a	10.95
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	3.81a	3.81a	2.95‡	2.95‡	....	.23	12.40^{d}
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.89	3.59	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.50
Detroit	3.27	3.00	3.05	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.75f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.18ag	.23e	11.35b
Los Angeles	4.00a	3.60a	4.72	1.95a	2.20a	1.95a	1.95a	2.08a	....	....	.11fm	.22m	10.43lh
Minneapolis	3.80d	3.49d	3.41	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.21ih	....	11.65fi
Montreal	3.01ac	2.86ac	....	2.50	2.50	2.25	1.05ij	1.30ij	....	....	.20	.20e	9.65ak
New Orleans	3.20	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.86	3.55	3.43	2.35bk	2.35bk	1.60bh	2.50bl	2.50bl	....	....	....	....	11.80an
Philadelphia	3.43/3.82‡	3.12/3.49‡	3.43/3.48‡	2.75‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.50
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	12.50
St. Louis	3.27/3.48b	2.84/3.10b	3.05/3.22	2.90am	2.90am	2.30/2.70am	1.70f	1.70f	1.50	1.50	.215	.26ci	10.40
San Francisco	3.36	2.96	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.23cl	10.70e
Seattle	3.75a	3.25a	4.50h	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.40j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers comm. not incl. *d* Dealers sell only LCL. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¾". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots and. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18. *l* F.o.b. plant San Rafael. *m* F.o.b. yard.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *d* 1–3 mi. zone. *e* 2,000 lb concr. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.50†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y	2.60†	Buffalo, N. Y	2.60†	Ironton, O	2.60†
Nazareth, Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y	2.75†	Montreal City	2.61
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

† *Prices to hold for fourth quarter of* 1952.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$33.25	$0.1975	$0.339	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	58.00‡	.....	22.00	.....	.0809	0.15	.09w	.17w	.09i	.09	0.12
Birmingham	......	45.50i	.....	......	.....	.....	.....	......	......	......	......	......
Boston	......	......	.....	24.50a	35.50a	22.00av	35.50av	......	......	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16^{b}w	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	55.00d	4.27g	23.00^{A}	.....	23.00^{A}	....	.1025^{A}w	.19^{A}w	....	.1115	.19^{A}
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	48.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.82	....	26.82v	.....	.117w	.....	.0925	.....	.2811
Kansas City	e	e	e	16.50el	...	.055	.....	.07^{e}w	.....	.0585e	0.435	.....
Los Angeles	e	.....	e	15.50dmz	...	15.50dvz	....	17.00dz	.....	16.00dv	.0825j	.1525j
Minneapolis	.....	.....	3.83h	23.90	....	22.895	.....	.0894w	.....	.0794	.0935	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	.....o	17.50ev	.....o	.085ew	.....o	.085^{B}	.085	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.68f	....	.1698	.....	.0865/.089^{w}	.....	0.15	.0975	.....
San Francisco	.....	55.00^{c}	.....	17.00g	32.50gp	17.00gkv	32.50gks	19.00g	36.50g	17.50v	.085y	....
Seattle	.....	.....	.....	17.00h	37.50h	16.25hv	.....	19.50h	...	18.50hv	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3". *h* 8# treat. *i* 3 x 3⅝ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40–85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85–300 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks. *y* F.o.b. Oakland. ^{A} F.o.b. refinery Cleveland. ^{B} F.o.b. Norco, La.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ¾-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	STEEL RAILS Per Net Ton Re-rolled	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$3.85	$3.90	$3.95	$7.85	....	$75.50	$85.00	Not available	$4.925	$6.65	$4.775	....
Chicago Area	3.85	3.90	3.95	7.85	$4.675	75.50	85.00		4.925	6.65	4.775	....
Pittsburgh Area	3.85	3.90	3.95	7.85	4.675	75.50	85.00		4.925	6.65	4.775	$9.85
Buffalo Area	3.85	3.90	3.95	7.75	4.675	75.50	85.00	....	4.925	6.65	4.775	9.85
Cleveland	....	....	3.95	7.85	4.675	......	......	....	....	....	....	9.85
Youngstown Area	....	....	3.95	....	....	......	......	....	....	6.65	....	....
Geneva	3.85	3.90	....	....	....	......	......	....	....	....	....	....
Los Angeles	....	....	....	....	....	......	......	....	....	6.65	....	....
Pueblo	3.85	3.90	3.95	....	....	75.50	85.00	....	4.925	6.65	4.775	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	REINFORCING BARS Rail steel	REINFORCING BARS Add switch	REINFORCING BARS $/cwt for Del.	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATHk Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCINGd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	WELDED FABRIC REINFORCINGd 4x12 in., No. 8 & 12 wires	WELDED FABRIC REINFORCINGd 6x6 in., No. 6 & 6 wires
Atlanta	$7.31	$7.11	$7.11	$.025	$...	$36.00‡	$40.00‡	A.P.M.* Joliet, Illinois, Donora, Penn., $2.81 F.o.b. Mill: Monessen, Penn., $2.91	A.P.M.* Joliet, Illinois, Donora, Penn., $1.96 F.o.b. Mill: Monessen, Penn., $2.03	A.P.M.* Joliet, Illinois, Donora, Penn., $2.95 F.o.b. Mill: Monessen, Penn., $3.05
Baltimore	6.47	6.07l	....	....	....	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston	6.56a	6.38	6.38	....	....	39.50	43.50			
Chicago	5.95	5.35/5.45ff	5.35/5.45ff	.0625	....	46.00C	51.00C			
Cincinnati	6.42ak	6.13r	....	....	.15	38.50szee	41.00szee			
Cleveland	6.30	5.06c	....	....	....	37.00‡	40.00‡			
Dallas	9.05	7.25	7.25	....	....	49.00	52.00			
Denver	7.55	7.50c	....	....	....	50.00s	62.00qs			
Detroit	6.42	6.24n	....	....	.20	53.00	58.00			
Kansas City	7.07nn Est	7.50# Est	....	....	....	45.00	49.00			
Los Angeles	6.80fhh	6.82g	....	....	....	48.00	54.00kk			
Minneapolis	6.51hh	7.12ll	7.12ll	....	....	37.00	39.50			
Montreal	6.65iB/6.95A	4.90i	4.90g	....	....	51.00h	57.00h			
New Orleans	....	5.80ok	....	.05	....	66.00	60.00			
New York	6.77	6.50	6.50	....	.30	38.50st	45.00st			
Philadelphia	6.42	6.67	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	36.60	38.60			
St. Louis	6.35a	5.50e	5.50e	....	....	47.00aa	53.00aa			
San Francisco	7.12	6.50l	....	....	....	40.50	43.50			
Seattle	4.50e	5.80el	....	....	....	57.00smm	47.00smmx			

* At Producing Mill

‡ Delivered. b 1–5 tons, add 35¢. Less than 1 ton, add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivered in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial any Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq.yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed. 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1⅛ in., 1¼ in., 10¢. ¾ in., ⅞ in., 15¢. ⅝ in., 25¢. ½ in., 50¢. ⅜ in. 80¢. ¼ in. $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000–19,999 lbs. kk ⅜" ribbed. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. # 10 tons to CL. a 2000–9999 lbs. A. Amer. struct'l shapes. B. Canadian shapes. C. Deliv to contractor.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft., f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	VITRIFIED SEWER PIPE std. 12 in. s.s.	VITRIFIED SEWER PIPE 24 in. ds.	VITRIFIED SEWER PIPE 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE 24 in.
Atlanta	$101.00	$1.44	$2.12	....	....			......		......	......
Baltimore	109.00	1.46	2.42	.546	1.053	4.275A	11.3775A	178.20	274.80	.90	2.45
Birmingham	93.00	1.44	2.42	.42	.75	2.99		250.00‡	375.00‡	1.25m	2.75m
Boston	113.00	1.46	2.20	.553uvx	1.0665uvy	4.41uvy	11.90uvy	187.80v	289.20v	1.55mg	3.80mg
Chicago	107.00	1.44	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.46	2.29	.567y	1.093y	4.32y	11.175y	164.40	254.10	.75m	2.80m
Cleveland	108.00	1.46	2.29	.49x	.945x	3.96x	10.66r	158.00m	245.65m	.75m	2.95m
Dallas	112.00	1.46	2.54	.436	.822	3.234b	9.17b	......	......	.49	1.60
Denver	115.00	1.55	2.54	.43dd	.74dd	3.18dd		......	......	.74m	2.50m
Detroit	108.00	1.46	2.29	.72	1.39	5.58	14.91	240.00m	360.00m	.80	3.20
Kansas City	113.00	1.46	2.29	.515	.92	3.64	9.20	216.70	465.00	.70q	3.00g
Los Angeles	124.00	1.53	2.29	.51f	1.07f	5.24f	13.06f	228.20f	348.90f	.95	2.70ff
Minneapolis*	112.00	1.50	2.42	.72mo	1.32mo	5.32mo		......	......	1.36h	3.87h
Montreal	115.00			.85z	1.50z	5.25z				1.17j	3.11j
New Orleans	101.50	1.44	2.42	.513	.93	5.15		265.00bb	450.00bb	.65	2.29
New York	111.35	1.46	2.20	.64	1.21	4.86	12.71		......	1.15	2.50
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55h	3.75h
Pittsburgh	109.00	1.46	2.20	.406m	.772m	2.85m	7.652m	117.00	230.00	1.05h	2.50h
St. Louis	112.00	1.46	2.29	.51	.93	3.65	8.58	160.00l	300.00l	1.20il	2.70hl
San Francisco	122.00	1.55	2.29	.61d	1.20d	5.03d	12.57d	240.00l	400.00l	.73	3.02
Seattle	124.00	1.55	2.42	.51b	.91b	....	....	150.00c	......	.86ee	2.56ee

*WROUGHT STEEL PIPE
(Full standard weight)

Mill	2½ & 3 in., Butt Weld† Black %	2½ & 3 in., Butt Weld† Galv. %	3½ to 6 in., Lap Weld† Black %	3½ to 6 in., Lap Weld† Galv. %
Lorain, Ohio	40.0	26.25	....	....
Aliquippa, Pa.	40.0	22.25	33.0a	15.25a
Sparrows Pt., Md.	38.0	19.75	28.0a	9.25a
Benwood, W. Va.	40.0	21.75	34.75c	16.0c
Youngstown, O.	40.0	21.75	....	....
Indiana Harbor, Ind.	39.0	20.75	32.0ab	13.25ab
Sharon, Pa.	40.0	19.75	....	....
Wheatland, Pa.	40.0	20.25	33.0a	13.25ab
Etna, Pa.	40.0b	19.25b	34.75cb	13.5b
Fontana, Calif.	28.5b	14.75b	20.0ab	6.25ab

† Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in.

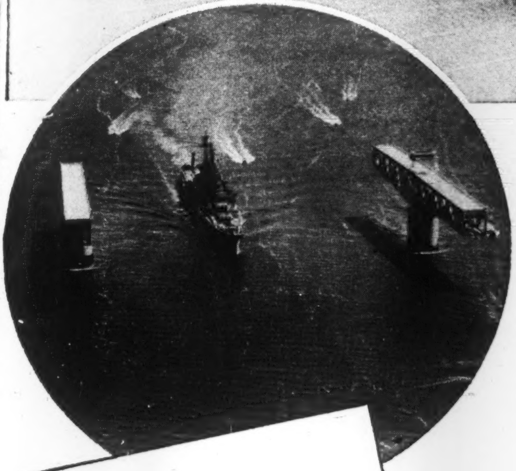
‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A. $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. b Extra strength ASTM C 200-44T. c 4-in., $90. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76-41. h Reinforced, ASTM C75-41. i Reinforced, ASTM C76-37. j Centrispun. No. standard specifications in Can. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13-40. v C.L.f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60-1941 specifications used. aa *Extra strength ASTM C-200-50.* A standard strength. * 6" to 8", $1.67 per ft.; carlots, F.o.b. track Class 150. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL delivered, f.o.b. truck. ee 1% off for cash. ff 21.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 25.75, galv + 57.0; 1¼ in. black, + 25.75, galv. + 56.5, 1½ in. black, + 19.25 galv. + 52.75; *Lap Weld* — 2½ in. to 3½ in. black + 26.25, galv. + 55 5; 4½ in. to 8 in. black + 23.0, galv. + 50.75. Freight rates to destination to be added to name delivered price.

(Continued on page 109)

World's largest double-leaf swing type bridge fabricated and erected by AMERICAN BRIDGE



THE George P. Coleman Memorial Bridge spanning the deep, swift York River between historic Yorktown and Gloucester Point, Virginia, is another engineering and construction triumph for American Bridge.

Resting on 220-ft. concrete piers extending 60-ft. above the water, this 3,750-ft. structure with its tandem swing spans is the largest bridge of its type in the world.

The superstructure, which is a combination of cantilever arms, deck plate girders, and suspended deck truss spans, has the extraordinary distinction of having two 500-ft. swing spans, each weighing 1,300 tons! Pivoting horizontally on piers 44-ft. in diameter, these unique spans swing open 90 degrees simultaneously to provide a 450-ft. freeway for the ample passage of even the largest U. S. fighting vessels.

The swing spans fabricated in the Roanoke, Virginia shops of American Bridge were erected in the open position. So well were all the phases of the work performed that when the bridge was closed, the three connecting points fitted together perfectly—again demonstrating the dependability of American Bridge construction.

INTERESTING FACTS

Total Length of Bridge	3,750′	Weight of Each Swing Span	1,300 tons
Length of Each Swing Span	500′	Weight of Steel Superstructure	10,720,000 lbs.

Number of Shipping Pieces 5027 (178 carloads)

Owner: State of Virginia, State Highway Dept.
Engineers: Parsons, Brinkerhoff, Hall and Macdonald, New York
Substructure Contractors: Massman Construction Co.—Kansas City Bridge Company, Kansas City, Mo.
Concrete Subcontractor: W. F. Magann Corp., Portsmouth, Va.
Superstructure Steel and Steel Bridge Decking: American Bridge Division, United States Steel Company

AMERICAN BRIDGE

congratulates the

ASCE

on 100 years of constructive service

1852 CENTENNIAL of ENGINEERING 1952

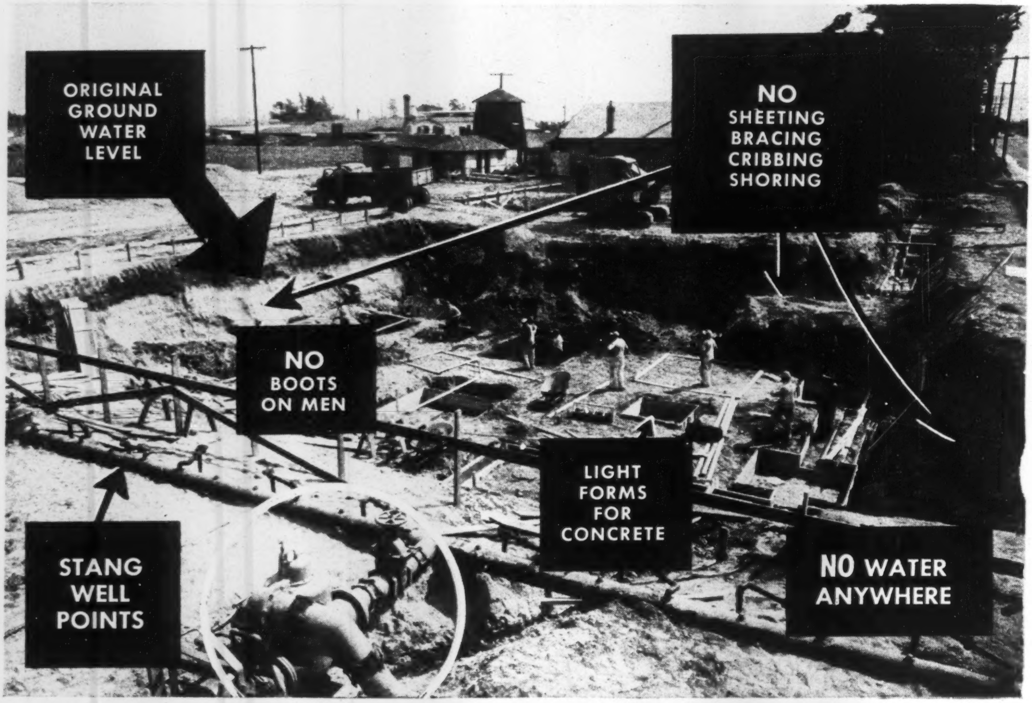
AMERICAN BRIDGE DIVISION, UNITED STATES STEEL COMPANY
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.
Contracting Offices in: AMBRIDGE · ATLANTA · BALTIMORE · BIRMINGHAM · BOSTON · CHICAGO
CINCINNATI · CLEVELAND · DALLAS · DENVER · DETROIT · DULUTH · ELMIRA · GARY · MEMPHIS
MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH · PORTLAND, ORE. · ROANOKE
ST. LOUIS · SAN FRANCISCO · TRENTON UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMERICAN BRIDGE

USS

UNITED STATES STEEL

HERE'S WHAT STANG MEANS BY "WORKING IN THE DRY"!


ORIGINAL GROUND WATER LEVEL
NO SHEETING BRACING CRIBBING SHORING
NO BOOTS ON MEN
LIGHT FORMS FOR CONCRETE
STANG WELL POINTS
NO WATER ANYWHERE

The picture tells the story . . . . a story of the results of using Stang Wellpoints to predrain the foundation of the Associated Telephone Building in Oxnard, California — for the Associated Telephone Company of Santa Monica, California. There couldn't be a better "show-me" illustration of how Stang Wellpoints really dry up any kind of a wet job. You won't see any water anywhere in this photo — no water was visible anywhere at any time after the excavation began, except at the end of the Stang Pump discharge line. And the Contractor, Beyer & Abrahamson of Los Angeles, will confirm our statement.

JOHN W. STANG CORPORATION

Engineers and Manufacturers of Dewatering Equipment

BELL, CALIFORNIA
8221 Atlantic Avenue
P. O. Box 631 Telephone: Logan 5-7421

NEW YORK CITY, NEW YORK
Number Two Broadway
Telephone: Whitehall 3-0565

OMAHA, NEBRASKA
2123 South 56th Street
Telephone: Walnut 7796

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR. All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face). *All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)*									LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	⅝"	¾"
Atlanta †	$75.00	$78.00	$69.00	$71.00	$75.00	$78.00	$77.00	......	......	......	......	$22.32	$27.24
Baltimore *	90.00	92.00	75.00	85.00	87.50	97.50	110.00	......	......	$148.00	$148.00	25.92*	31.60*
	109.50g	*109.50g*	*109.50g*	*109.50g*	*109.50g*	*109.50g*	*109.50*	*$119.50*	*$119.50*	......	......	......	......
Birmingham †	83.50	83.50	70.50	80.50	83.50	85.50	95.50	......	......	115.50	155.50	21.78	26.58
	85.50	*85.50*	*80.50*	*79.50*	*78.50*	*78.50*	*85.50*	*85.50*	*85.50*	......	......		
Boston	102/106[n]a	104/110[n]a	102/106[n]a	95/104[n]a	96/106[n]a	110/115[n]a	......	......	......	......	......	25.92*	31.60*
[3]	*95.00*	*95.00*	*108/112*	*102/108*	*102/108*	*102/108*	*110.00*	*110.00*	*110.00*	......	......	......	......
Chicago **	100.00	105.00	92.00	100.00	101/102	105/106	105.00	......	......	134.00	134.00	22.45*	27.37*
	100.00	*101/102*	*104/105*	*108.00*	*108/110*	*108/110*	*110.00*	*110.00*	*110.00*	......	......	......	......
Cincinnati *	99.00	105.00	88.00	98.00	105.00	110.00	122.50	......	......	145.00	145.00	25.00*	30.48*
	115.00	*115.00*	*117.00*	*117.00*	*117.00*	*115.00*	*145.00*	*145.00*	*145.00*	......	......	......	......
Cleveland **	98.00	102.00	86.00	92.00	98.00	101.00	......	......	......	......	......	25.37*	30.93*
	......	......	*104.00*	*104.00*	*107.00*	*108.00*	*110.00*	*115.00*	*115.00*	......	......	......	......
Dallas k†	78.00	80.00	69.00	58.00	59.00	59.00	98.00	......	......	108.00	98.00	18.72	22.80
Denver *	*Not in stock*		*137.00*	*138.00*	*134.00*	*136.00*	*139.00*	*155.00*	*155.00*	......	......	13.92	16.98
Detroit ‡	110.00	112.00	102.00	110.00	114.00	115.00	......	......	......	......	......	25.00*	30.48*
	101.50	*102.50*	*111.50*	*112.25*	*111.25*	*110.00*	*118.75*	*122.50*	*122.50*	......	......	......	......
Kansas City *	122.00	122.00	122.00	122.00	122.00	122.00	......	......	......	......	......	16.56	20.16
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*	......	......	......	......
Los Angeles [1]	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*114.00*	*124.00*	*114.00*	......	......	16.61*ab	20.25*ab
Minneapolis #	*130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*	......	......	19.89*	24.25*
Montreal	ab85.00	90.00	85.00	90.00	100.00	100.00	......	......	......	......	......	......	......
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*	......	......	......	......
New Orleans †	100.00	100.00	92.50	85.00	90.00	94.00	118.00	......	......	148.00	140.00	18.72	22.80
†	*90.00*	*100.00*	*108.25*	*99.25*	*97.50*	*97.50*	*120.00*	*122.50*	*120.00*	......	......	......	......
New York [2]	109/114	112/117	110/115	115/120	120/125	125/130	150/160	......	......	210/240	210/240	25.92*	31.60*
	......	......	*Range from $117.00 to $122.00*				*130/145*	*144/155*	*144/155*	......	......	......	......
New York **	98.00	101.00	82.00	97.00	100.00	102.00	125.00	......	......	190.00	190.00	...	...
	98.00	*98.00*	*108.00*	*108.00*	*108.00*	*108.00*	*115.00*	*125.00*	*125.00*	......	......	......	......
Philadelphia ‡			Range from $114.00 to $127.00				114/127	......	......	200/210	200/210	25.92*	31.60*
			Range from $125.00 to $150.00				*130/140*	*150.00*	*150.00*	......	......	......	......
Pittsburgh †			Range from $90.00 to $95.00			110/120	110/120	......	......	110/120	115/125	25.92*	31.60*
			Range from $110.00 to $120.00			*110/120*	*110/120*	*140/155*	*145/155*	......	......	......	......
St. Louis #	c116.00e	118.00e	100.00d	113.00e	130.00e	132.00e	......	......	......	......	......	18.72	22.80
	......	......	*114.00i*	*125.00e*	*125.00e*	*126.00e*	*180.00e*	*180.00*	*180.00*	......	......	......	......
San Francisco A†	*65.00*	*66.00*	*72.00*	*71.00*	*70.00*	*70.00*	*73.00*	*74.00*	*74.00*	......	......	12.22*a	14.91*a
Seattle †	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	......	......	......	......

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8-12 ft. lengths. *e* 8-16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common *l* 8-10 ft. lengths. *n* ⅓ #1, ⅓ #2 & ⅓ #3.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅝", $176.00; on ¾", $201.00. Exterior plyform ⅝" $196.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS — Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness		EXPLOSIVES — Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
	A quality	B quality	
Atlanta	79%	80%	$0.2315
Baltimore	76%d	78%d	.2315
Birmingham	83%	83%	.1790
Boston	79-10%	79-10%	.2315
Chicago	78%	78%	.2315
Cincinnati	78%	78%	.2315
Cleveland	78-10-10%	78-10-10%	.2715
Dallas	75%	75%	.2390
Denver	81-5%	81-5%	.2365
Detroit	78-10-10%	78-10-10%	.2315
Kansas City	80-10%	80-10%	.2365
Los Angeles	75%	80%	.2340
Minneapolis	78-10%	78-10%	.2365
Montreal	40-5%bc	40-10-5%b	21.60hi
New Orleans	78%	77%	.2365
New York	82-10%	82-10%	.3975g
Philadelphia	78%	82%	.2315
Pittsburgh	82%	82%	.2040
St. Louis	80-10%	80-10%	.2365
San Francisco	70%	70%	.2315
Seattle	75%	78%	.2340

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40% Forcite 60%, $23.35. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 - .1915	.2165- .224	.2365- .244
Rocky Mtn. States	.184 - .1965	.2165- .224	.2365- .249
Pacific N. W. States	.1815- .194	.214 - .2265	.234 - .2465
Pacific S. W. States	.179 - .1865	.2115- .214	.2315- .2365

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail — Pine*	By Rail — Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	..
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8'		7"x9"x8'6"	
		Untr.	Tr.	Untr.	Tr.
Boston	Oak i	....	...	....	....
	Pine i	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	...	4.00a	....	5.00a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.60	3.95	3.45	5.10
St. Louis	White Oak	3.04	....	3.85	....
	Red Oak	2.94	3.60a	3.67	4.68a
	Sap Pine or Cypress	3.41a	....	4.44	....
San Francisco	Douglas Fir	2.20e	3.25ef	2.92bf	4.30caf
Montreal	Birch or Maple	....h	...h	....h	....h

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.50	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	183.00	195.00	366.00	415.00	541.00	618.00	36.00k	41.00k	30.00	21.00	....
Birmingham	118.00p	128.00p	236.00p	283.00p	......	......	23.50ff	28.00gg	26.37	17.10	.
Boston	196.00†	209.00†	392.00†	383.25†	......	......	34.50p	37.50p	30.00†	28.00†	.
Chicago	135.00	145.00	280.00	......	......	......	23.00	25.00	30.80	26.00	....
Cincinnati	185.00j	195.00j	340.00jdd	......	......	......	34.50j	46.00j	26.37j	24.62j	.....
Cleveland	172.00**	183.00**	......	......	......	......	32.00	32.00	25.50	23.50	31.00ee
Dallas	......	118.00	......	......	......	......	19.75	35.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	40.00	34.80bb	28.00bb	34.00bb
Detroit	127.75	136.25	255.55	......	317.25	362.60	34.90cc	33.30cc	32.00	30.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	r	r	r	r	r	r	24.50§	.....	34.24	34.24	35.24
Minneapolis	171.50p	192.50p	386.00p	192.50wp	......	......	32.00vp	36.00	38.00bbe	28.00bbe	40.00bbde
Montreal	150.00aq	162.50au	300.00au	......	......	......	31.00	41.50	34.80	32.50	24.60u
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	138.70h	147.90h	203.40ch	221.90hn	......	......	35.00	.....	36.00	32.00	...
Philadelphia	126.30	134.80	252.60	302.74	361.35	......	32.00	42.00	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	139.00cc	160.00cc	316.00cc	375.00cc	......	......	40.00sl	36.00s	.85saa	.65saa	1.10aaspee
San Francisco	156.85a*	177.10a*	235.30dda*	......	......	......	37.00	.....	26.60	26.60	2.65m
Seattle	175.00cc	190.00cc	......	190.00ccw	......	......	39.00s	49.00s	37.50shh	1.45#	3.90mhh

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. # Per 60 lb. sack, no incr., ton price no longer quoted. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$19.00	$30.125	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	18.75	29.75	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	19.00	30.125	3.90	3.40	....	2.80	2.75	2.75	....	40.50ee
Boston	18.75	29.75	....	...	....	2.67gg	2.79og	2.79og	.42g	42.00g
Chicago	18.75	29.75	....	. .	...	2.73‡u	3.04‡o	3.04‡o	38.00‡bbr	43.00‡
Cincinnati	18.75	29.75	..	....	....	2.50	2.50	2.50	.42y	42.36
Cleveland	18.75	29.75	2.42pggA	2.88ggB	2.32ggC	2.50q	2.50o	2.50o	.39y	43.20hh
Dallas	19.00	30.50	....	4.05	....	3.50q	3.75o	4.35o	.36	46.00
Denver	19.25	30.25	3.07	5.15	2.87	3.31o	2.40o	2.40o	.43ff	44.00
Detroit	18.75	29.75	2.35	3.40	2.50	2.75	2.50f	2.50	.51	40.00
Kansas City	18.75	29.87	....	2.71ys	2.65	2.50	2.50o	2.50o	.313s	48.00
Los Angeles	18.75	30.00	3.30s	4.50s	4.20s	2.97s	2.01es	l	.44s	l
Minneapolis	18.75	28.95/29.87	....	....	....	2.40idd	2.50hidd	2.50hidd	.36idd	37.00r
Montreal	.....	20.70	2.95Dff	4.05Eff	3.35Fff	4.82t	3.65tf	3.65tf	1.24kt	3.78kt
New York	18.75	29.75	....	....	....	2.50	2.50o	2.50o	.36z	37.00*
Philadelphia	18.75	29.75	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.75	29.75	2.65	2.65	3.15	2.50	2.87o	2.87o	.40	42.00
St. Louis	18.75	29.75	....	....	....	2.50	2.50h	2.50h	.33y	38.00
San Francisco	18.75	30.00	2.40	....	3.40	2.95	4.00aa	....	.49	.....
Seattle	18.75	30.25	2.96m	2.80m	....	3.58mgcc	3.05hmcc	....	.59mcc	52.00jmc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266–31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bc* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt. in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTP 27. *B.* TTA 468A. *C.* TTP 31A. *D.* Std Black. *E* Ready-mixed, *F.* Over 80% ferric oxide. * Aver. wt. approx. 500 lbs

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.90	$2.20	$2.60	$2.25	$2.75	$2.60	$2.90	$1.13	$1.13
Baltimore	3.20r	2.58	3.125t	2.85/3.00	2.75	2.875t	2.875t	1.565t	1.565t
Birmingham	3.00	2.24	2.50	2.16	2.52	2.75	2.65	1.225	1.325
Boston	3.06w	2.625	2.82	3.00	3.05	3.00d	2.90d	1.99u	1.99u
Chicago	3.25k	3.00m	3.05w	2.80	3.43g	3.212f	3.09e	2.20m	2.20m
Cincinnati	3.12	2.625	2.815	2/2.50/3.05	2.90	2.90	2.90	1.92	1.92
Cleveland	3.12	3.075#	3.075	3.075	3.075	3.075	3.07**	2.325	2.325
Dallas	3.4375	2.4875	2.625	2.50	3.437	2.75	2.7625	1.325	1.35
Denver	3.45	2.625	2.50	2.63	3.30w	2.90	2.82	1.725	1.725
Detroit	3.18	2.93	3.18m	2.90	3.31l	3.05	3.00s	2.18	2.18
Kansas City	3.50	2.55	2.68	2.515/2.76	3.175	2.70	2.75	1.88	1.88
Los Angeles	3.175	2.57	2.70	2.45	3.437	2.75	2.90	1.94	1.94
Minneapolis	3.05	2.55	2.57	2.50	2.90	2.71n	2.70	1.82	1.82
New Orleans	2.85	2.22	2.65	2.50	2.525	2.65	2.65	1.225	1.225
New York	3.85hr	3.24ho	3.50o	3.50o	3.95A	3.795as	3.445bp*	2.05	2.05
Philadelphia	3.46i	2.90	3.32j	2.90**	3.325k	3.298u	3.29e	1.75	2.05
Pittsburgh	3.25	2.75	2.75	2.825	3.15	2.75	2.80	1.90	1.90
St. Louis	3.55c	2.90hx	2.90x	2.95s	3.00	3.09c	2.75	1.97	1.97
San Francisco	3.25b	2.705	2.85	2.56	3.125*	3.00	2.75	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*†	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 7¼¢ W.F. *d* Incl. 10¢ H. & W. F *e* Incl 6¢ H. & W. F *f* Incl 6% W. F. *g* Incl. 11½¢ W. F.. * Cost of living bonus now included in basic wage. # Includes 5¢ per hr. tool replacement. *h* $2.45 homes and housing + 5¢ vacation fund. *i* Incl. 3½% welfare. *j* Incl. 9¢/hr. welfare. *k* Incl. 7½¢/hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢/hr. welfare ins. fund. *n* Incl. 6¢/hr. welfare fund. *o* Incl. 3% welfare fund. *p* Incl. 5% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 5% welfare and pension fund and 4% vacation fund, 1% N. C. *t* Incl. 7½¢ W. & H. F. *u* Incl. 1½% welfare fund. *v* Incl. 10¢ welfare fund. *w* Negotiating. *x* Await WSB appr *y* Incl. 8% W. F. *z* Incl. 7½¢ ins. fund, 5¢ H. & W. F. *A* Incl. 10¢ W. F., 10¢ P. F. & 10¢ Vac. F. † Plus 2% vacation pay. ** Incl 7¢ Ins. Fund

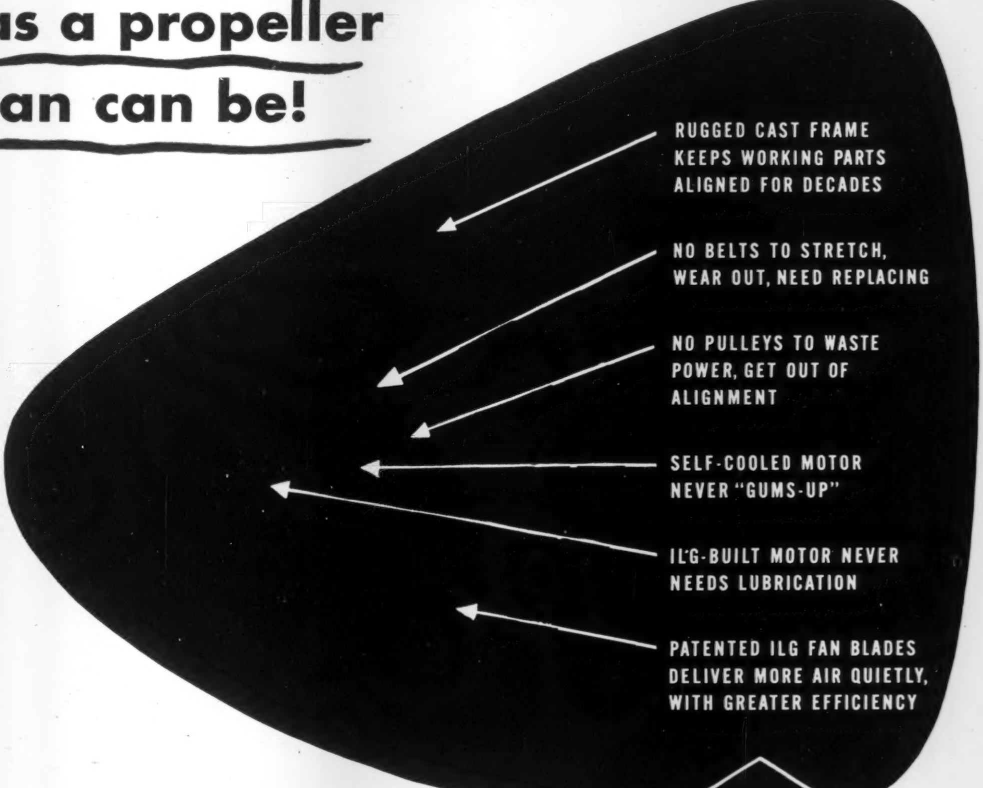
MEXICO CITY PRICES

In Pesos, F.o.b. City		Aug'52	Sept'52
Common Wages—Building (8 hr. day)	av. per hr.	.83*	.83*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.93*	.93*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50*	1.50*
Struct. Steel Shapes			
3"–15" x 12 meters	per metric ton	1,193.63	1193.13
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,356.17	1355.67
½" x 11 meters	per ton	1,344.96	1344.46
⅝" x 11 meters	per ton	1,333.75	1333.25
¾" x 11 meters	per ton	1,322.54	1322.04
⅞" x 11 meters	per ton	1,322.54	1322.04
1" x 11 meters	per ton	1,322.54	1322.04
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	50.00	50.00
Rose Gravel	per tr. load	47.00	48.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	850.00	850.00
1st Class Pine	per M ft.	1400.00	1400.00
2nd Class Pine	per M ft.	1100.00	1100.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers): $2.921 **ENR Common Average: $1.817.**

As maintenance-free as a propeller fan can be!


RUGGED CAST FRAME KEEPS WORKING PARTS ALIGNED FOR DECADES
NO BELTS TO STRETCH, WEAR OUT, NEED REPLACING
NO PULLEYS TO WASTE POWER, GET OUT OF ALIGNMENT
SELF-COOLED MOTOR NEVER "GUMS-UP"
ILG-BUILT MOTOR NEVER NEEDS LUBRICATION
PATENTED ILG FAN BLADES DELIVER MORE AIR QUIETLY, WITH GREATER EFFICIENCY

ILG direct drive ends noise and trouble

- Here's the propeller fan that's practically maintenance-free over decades of service. Mounting of fan blade directly onto motor drive shaft, plus a rugged cast frame, keeps working parts in perfect alignment. Nothing can get out of order to cause objectionable noise, inefficient operation, or rapid wear. There are no belts to replace, no pulleys to adjust. The patented ILG-built motor has double-sealed, permanently lubricated ball bearings—and it's specifically designed with a self-cooling feature for exhaust fan duty. The motor stays clean, cools itself—no foul air reaches it to interrupt service, shorten its life. You get the *low operating cost* of an open-type motor with the *protection* of a fully-enclosed motor. Get complete data now on the fan you can install and forget. Send coupon or phone our nearby Branch Office (consult classified directory).

ILG
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Free! Engineering data bulletin 150 contains all essential data—sizes, capacities, dimensions, ratings. Send coupon now.

☐ Send free bulletin 150.

ILG
PROPELLER FANS

Firm Name____________________

Individual____________________ Title________

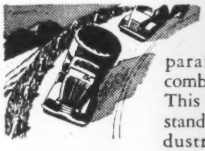
Address____________________

City____________________ State________

HEAVY-DUTY T5X SAVES CONTRACT

on "...one of the most difficult hauls our trucks have ever had."

Prior to using T5X, the A. J. McCosker Company of Berkeley, Calif., was working for the U.S. Navy in the construction of Oak Knoll Hospital in Oakland. Vern DeAgo, superintendent of equipment, recalls: "It was one of the most difficult hauls our trucks have ever had. We had the combination of slow climbing and very fast descent, both hard on motors . . . We were operating 20 trucks and we had as many as three down per day with bearing failures. The situation became so desperate that we were doubtful that we could fulfill our contract.



"Having heard of T5X, we changed all of our trucks over to it at once. Immediately our bearing failures stopped; we had no troubles with lubrication from then on." Heavy-duty T5X is made by blending a 100% paraffin-base stock with a powerful combination of *fortifying compounds.* This sensational *purple oil* gives outstanding protection in *any* type of industrial internal combustion engine.

Equipment superintendent DeAgo says: "I have been in the construction business for 28 years, and have used nearly all the oils competitive with T5X. I have never found another oil which is so ideal for every phase of heavy construction work. We now operate 120 pieces of equipment, including shovels, compressors, rollers, blades, trucks, tractors, etc. *T5X is in every one of them.*"

The answer to *severe* lubrication problems, T5X cleans as it lubricates, keeps the rings free, retards the formation of harmful carbon and sludge. The unusually high quality of T5X gives you the opportunity for increased engine efficiency, less wear, and lower maintenance and repair costs. *Prove* this for yourself by giving heavy-duty T5X a trial in engines operating under critical conditions.

Developed by the manufacturers of UNOBA—the industry's original multi-purpose grease

Los Angeles	Chicago	New York	Cincinnati
Union Oil Building	1612 Bankers Building	4904 RCA Building	2111 Carew Tower Bldg.

New Orleans, 917 National Bank of Commerce Building

76 **UNION OIL COMPANY** OF CALIFORNIA

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Lowell—AUDITORIUM AND ADMINISTRATION—B.A. 10/17—State, Dpt. Educ., 200 Newbury St., Boston, auditorium and admin. bldg., Lowell Textile School, E 305-7918-14. Plans deposit $50, Krokyn & Browne, 184 Boylston St., Boston, archts. CD 7/30/51.

† **Mass., Natick**—LABORATORY—B.A. 10/17—U. S. Eng., 857 Commonwealth Ave., Boston, quartermaster research and development laboratory, Lake Cochituate, Eng. 19-016-53-8. Extended date. CD 9/16.

Mass., Danvers—GYMNASIUM—B.A. 10/18—St. John's Preparatory School, Brother Bertin, headmaster, Danvers, cinder block, brick memorial gymnasium, $300,000, Fitzpatrick & Lunt, 204 Dodge St., Beverly, designers. CD 2/11/49.

† **R. I., Newport**—EVALUATOR—B.A. 10/23—P. Wks. Office 495 Summer St., Boston, Mass., Sims Hall alterations for Electronic Command Evaluator, Bldg. 29, Naval War College, Spec. 32419. Plans deposit $40.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—State Hy. Dpt., State House, Augusta, **W. H. Hinman, Inc.**, North Anson, Me. and **Ellis G. Snodgrass, Inc.**, 465 Congress St., Portland, Me. CA **$5,498,692.** Fore River Bridge, Portland and South Portland, Cumberland Co. Bids Sept. 24. CD 9/8.

MAINE—State Hy. Comn., State House, Augusta, **Lee Bros.**, Albion, Me. CA **$168,487**. hy. Proj. S 0193, Waldoboro. Bids Sept. 24. CD 9/17.

† **U. S. Eng.**, 857 Commonwealth Ave., Boston, Mass. rejected bids Sept. 30. transmitter and receiver bldgs., Limestone Air Force Base, Eng. 19-016-52-78, LIMESTONE, ME. CD 9/15.

† **U. S. Eng.**, 857 Commonwealth Ave., Boston, Mass. rejected bids Sept. 11, box culvert, Union Village Dam, Ompompanoosuc River, CIVENG 19-016-53-2, VERMONT. CD 9/4.

Ralph Civitarese, 139 Providence St., Hyde Park, Mass. LB **$185,115**, est. $185,000. relief sewers, Liberty St., SPRINGFIELD, MASS. City, Dpt. P. Wks., City Hall, Springfield, Mass. Bids Sept. 23. CD 9/5.

RHODE ISLAND—State Hy. Dpt. Div. Purchases, State House, Providence,
Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I. LB **$183,883**, constr. Elmgrove Ave. from Angell St. to Blackstone Blvd., Contr. 5221, Providence. Bids Sept. 24. CD 9/9.

BUILDINGS

LOW BIDS AND CONTRACTS

Morton C. Tuttle Co., 362 Park Square Bldg., Boston, Mass. CA **$500,000**. MACHINE MFG. BLDG., SPRINGFIELD, VT. Jones & Lamson Machine Co., Springfield, Vt.

Sciaba Co., 86 Shawmut Ave., Boston, Mass. LB **$975,000.** HIGH SCHOOL addn., alterations, AUBURN, MASS. Town, School Dpt., Tuttle Square, Auburn, Mass. Bids Sept. 25. CD 9/5.

▲ **C. L. Rugo & Sons, Inc.**, 80 Boylston St., Boston, Mass. CA **$5,592,000,** est. $5,000,000. Proj. 200-11 constr. 504 veterans HOUSING units, Franklin Field, Dorchester, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. Bids Sept. 12, awarded Sept. 24. CD 9/25 under LB.

James S. Kelliher, 1245 Hancock St., Quincy, Mass. LB **$497,122**. Public HEALTH CENTER, Harvard and Pierce Sts., BROOKLINE, MASS. Town, Bd. Selectmen, Brookline, Mass. Bids Sept. 23. CD 9/8.

A. E. Arcese Co., 56 Central Ave., Newton, Mass. erection fdn; steel, walls contract;

Savage Co., Pond Rd., Newton, Mass. heating plumbing and ventilating for steel LABORATORY, Oak Hill Rd., HARVARD, MASS. Approx. **$100,000.** Weston Laboratories, 410 Glen Rd., Weston, Mass. Bids June 26. CD 6/25.

Bay State Homes Realty Co., 11 Main St., Natick, Mass. Separate Contracts. est. **$300,000.** 35 RESIDENCES, NATICK, MASS. CD 9/24.

Oakwood Acres Development Co., 6 Northboro St., Worcester, Mass. Owner Builds. Est. **$300,000.** 27 RESIDENCES, SHREWSBURY, MASS.

The Wadhams & May Co., 15 Lewis St., Hartford Conn., LB, **$496,816,** Southeast Elementary SCHOOL, NEWINGTON, CONN. Town Bd. Selectmen, Town Hall, Newington, Conn. Bids Sept. 24. CD 9/10.

DeLuca Constr. Co., 27 Crescent St., Glenbrook, Conn., CA, **$793,000,** Willard-Belltown Elementary SCHOOL, STAMFORD, CONN. City Purch. Agt., City Hall, Stamford, Conn. Bids Sept. 16, awarded Sept. 23. CD 9/23, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New Jersey—B.A. 10/16—State Div. Water Policy & Supply, 520 E. State St., Trenton, N. J. lock-control structures on Delaware and Raritan Canal, Franklin Twp., Somerset Co. Plans deposit $10. CD 1/19/50.

N. Y., Thiells—B.A. 10/16—Bureau Contracts & Accounts, Albany, new 8 in. water main at Letchworth Village. Plans deposit $5.

† **Del., Dover**—RECEIVER BLDG.—B.A. On or About 10/30—U. S. Eng., 211 North Broad St., Phila., 1, Pa., remote receiver bldg., remote transmitter bldg., and related facilities, Dover Air Foce Base, approx. 4½ mi. southeast of here. ENG 36-109-53-117. CD 9/13/51.

† **Del., Dover**—MESS—B.A. On or About 11/16—U. S. Eng., 121 N. Broad St., Phila., 1, Pa. officers' mess bldg., Dover Air Force Base, 3 mi. southeast of here. ENG 36-109-53-114. CD 9/13/51.

† **Del., Dover**—STORAGE BLDG.—B.A. On or About 11/7—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., refrigerated storage bldg., Dover Air Force Base, 3 mi. southeast of here. ENG 36-109-53-115. CD 9/13/51.

† **Del., Dover**—WAREHOUSE—B.A. On or About 11/13—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., A.I.O. warehouse, Dover Air Force Base, ENG 36-109-53-116. CD 9/13/51.

BIDS ASKED—BUILDINGS

N. Y., Hogansburg—SCHOOL—B.A. 10/23—Bureau Contracts & Accounts, Albany, School addn., alterations at St. Regis Indian Reservation. Plans deposit $30. Extended date. CD 8/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

PENNSYLVANIA—State Hy. Dpt., North Office Bldg., State Capitol, Harrisburg,
New Enterprise Stone & Lime Co. Inc., New Enterprise, Pa., LB **$98,457,** bit. on crushed aggregate surf. 20 ft. wide, incl. railroad crossing from east of Tyrone Boro north-easterly for 0.96 mi., TR 350-550, Blair and Huntingdon Counties;
Foster Grading Co., Jackson Center, Pa., LB **$542,777,** crushed aggregate base and bit. surf. 22 ft. wide incl. 6 rein.-con. structures and existing bridge floors from near Greenville Boro, easterly for 5.65 mi. TR. 358 in Hempfield and Otter Creek Twps., Mercer Co.;
Love & Saxe Co., Mount Union, Pa., LB **$262,504**, bit. on crushed aggregate surf. 18 ft. wide from near the intersection of Leg. Rts. 55008 and 55022, southwesterly for 3.42 mi., FASP., Somerset Co. Bids Sept. 26. CD 9/9.

▲ **Charles H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., LB. **$1,526,378,** sludge disposal plant, structures and equipment, Unit 17, Sewage Treatment Plant, WASH., D. C. Dist. of Columbia, Director Sanitary Engineering, District Bldg., Wash., D. C. Bids Sept. 25. CD 8/12.

BUILDINGS

LOW BIDS AND CONTRACTS

Walter Butler Co., Inc., 4 and Cedar Sts., St. Paul, Minn. CA. Approx. **$500,000.** design and construct. 3 story, bsmnt., brick, concrete block, steel frame CONVALESCENT HOME, near BEAVER FALLS, PA. McGuire Memorial Hospital, c/o Seton Hill College, Greensburg, Pa.

Gumina Bldg. & Constr. Co., Inc., Larch Ave., New Brunswick, N. J. LB. **$475,600,** general constr. 18-room addn. to Fallsington Elementary SCHOOL, FALLSINGTON, PA. Falls Twp. School Auth., Yardley Rd., Fallsington, Pa. CD 3/24.

Washington Eng. & Constr. Co., Oakland and Penna. Aves., Washington, Pa., CA. **$872,000**. 2 story, 237,x380 ft. irregular, brick, block, consolidated GRADE and JUNIOR High SCHOOL, near LIGONIER, PA. Ligonier Twp. School Dist., Ligonier, Pa. Bids Aug. 15. CD 8/26. under LB.

Ira C. Wilcox, Inc., 6415 Hamilton Ave., Pittsburgh, Pa., CA. **$323,490**, Est. $300,000. 2 story, bsmnt., 60x180 ft. brick, block parochial SCHOOL, Forest Hills, PITTSBURGH, PA. St. Maurice Roman Catholic Congregation, 2140 Ardmore Blvd., Forest Hills, Pittsburgh, Pa. Bids July 31. CD 7/29.

Austin Co., 16112 Euclid Ave., Cleveland, O. CA. **$250,000.** 1 story approx. 70x190 ft. steel MFG. BLDG., WEST ELIZABETH, PA. Penn Rillton Co., Irwon, Pa. CD 2/14.

▲ **Charles E. Smith, Inc.**, Southern Bldg., Wash., D. C., CA, **$3,000,000,** APARTMENT, Connecticut Ave. between Albemarle and Brandywine Sts. N.W., WASH., D. C. Morris A. Kanfer, 15 and H Sts. N.W., Wash., D. C. CD 3/31.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Miss., Pascagoula—RAILROAD TRACKAGE—B.A. 10/14—Pascagoula Port Comn., railroad trackage.

† **Louisiana**—B.A. 10/15—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, 430,000 cu.yd. earthwork on Atchafalaya Basin Protection Levee, Inv. 53-56. St. Mary Parish. CD 6/26/46.

Miss., Gulfport—B.A. 10/16—City, City Hall, WW imprvs. CD 8/15/51.

Ga., Savannah—B.A. 10/17—City, City Hall, sanitary sewers south of De Renje Ave. $100,000. Plans Deposit $20. Thomas & Hutton, Box 1043, Savannah, engrs. CD 9/25/50.

Fla., Key West—B.A. 10/20——Florida Keys Aqueduct Comn., Ernest A. Ramsey, Mgr., 520 Southard St., furnishing, erecting one 1 m.g. ground level steel reservoir and five 500,000 gal. reservoirs. Plans deposit $10. Rader Eng. Co., 1615 Du Pont Bldg., Miami, engrs.

† **Fla., Eglin Air Force Base**—LIGHTING SYSTEMS—B.A. 10/21—U. S. Eng., P.O. Box 1169, Mobile 7, Ala., high tension and taxiway lighting systems at auxiliary air force base, Eng. 01-076-53-18. Plans deposit $5.

Fla., Hollywood—B.A. 10/21—City, City Hall, water plant addns. Extended date. CD 9/11.

† **Ga., Albany**—B.A. 10/23—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S.C., paving and utilities at Marine Corps Depot of Supplies, Spec. 35229. Plans deposit $100. CD 2/5/51.

† **Ky., Fort Campbell**—HOUSING—B. A. 10/23—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, family housing, Campbell Air Force Base, Eng. 15-029-53-27. CD 9/28.

† **La., Alexandria**—BULK STORAGE FACILITIES—B. A. 10/23—U. S. Eng., 300 Broadway, Little Rock, Ark., Job. No. AFB-52-ACRP-AF bulk storage facilities, Alexandria Municipal Airport, Eng. 03-050-53-22. CD 9/17.

† **Fla., Key West**—WAREHOUSE—B.A. 10/28—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C., aviation supply warehouse. U. S. Naval Air Station, NOY 74141. Extended date. CD 8/27.

† **La., New Orleans**—ELECTRICAL DISTRIBUTION SYSTEM, etc.—B.A. 10/28—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., electrical 13.8 kv distr. sys., sub-stations., curtain walls, etc., Michoud Ordnance Plant, Eng. 41-243-53-11.

† **Florida**—B.A. 10/29—U. S. Eng. P. O. Box 1169, Mobile, 7 Ala., clearing reservoir Parcels No. 2-3-56 and 7 at Woodruff Dam, Chattahooche, Civeng 01-076-52-22. Plans deposit $10. CD 1/25.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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		12 oz.	14 oz.	12 oz.	14 oz.
16' x 20'	15' 2" x 19' 2"	$35.40	$40.00	$38.50	$44.00
20' x 20'	19' x 19' 1"	44.25	50.00	48.00	55.00
20' x 30'	19' x 29'	66.40	75.00	72.00	82.50

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BIDS ASKED—BUILDINGS

Ga., Milledgeville—TWIN BLDG.—B.A. 10/21—Georgia State Dpt. P. Welfare, State Office Bldg., Atlanta, twin building addns., State Hospital $750,000. Plans deposit $50. Albany Architects & Engineers, 200½ Broad St., Albany, archts. CD 7/2, under LB.

▲ **Fla., Clearwater**—SCHOOL—B. A. 11/15—Pinellas Co. Bd. P. Instruction, 305 Haven St., 58th High School, $1,000,000. Philip F. Kennard, 105 2 Ave. N. E., St. Petersburg, archt. CD 9/24.

▲ **Fla., Clearwater**—SCHOOL—B. A. 12/1—Pinellas Co. Bd. P. Instruction 305 Haven St., Central Pinellas High School, $1,000,000. Philip F. Kennard, 105 2 Ave. N. E., St. Peterburg, archt. CD 9/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Grannis & Sloan, Thompson & Street & Wattinger,** P. O. Box 484, Richmond, Va., LB **$2,818,200,** radio transmitter facilities, Naval Communications Center, Monogram NOY 71277, Spec. 32847, PORTSMOUTH, VA. P. Wks. Office, Fifth Naval Dist. U. S. Naval Base, Norfolk, Va. Bids Sept. 23. CD 8/21.

Wheeling Electric Co., 51 16 St., Wheeling, W. Va., Owner Builds, **$115,000,** electric transformer station, BRIDGEPORT, W. VA.

▲† **Henry C. Beck Co.,** 514 First Natl. Bldg., Atlanta, Ga., LB **$2,756,988.** aircraft maintenance hangar bldg. at Marine Corps Air Station, NOY 29423, CHERRY POINT, N. C. Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C. Bids Sept. 24. CD 9/17.

† **Kaminer-Helgerson, Inc.,** 303 S. Hudson St., Greenville, S. C. LB **$395,800** installing an aircraft refueling sys. at Charleston Air Base, No. 38-081-53-7, CHARLESTON, S. C. U. S. Eng., 33 Customhouse, Charleston, S. C. Bids Sept. 23. CD 9/3.

J. W. Meadors & Co., Box 6353, Jacksonville, Fla., LB, **$595,833,** sanitary sewerage imprvs., GRIFFIN, GA. City, Griffin, Ga. Bids Sept. 23. CD 8/21.

G. L. Tarlton Contg. Co., West Park at Manchester St., St. Louis, Mo., LB, **$922,693,** intercepting sewers and sewage pumping station, FLORENCE, ALA. City Florence, Ala. Bids Sept. 23. CD 9/16.

H. C. Price Co., Box 1111, Bartlesville, Okla., CA Approx. **$500,000.** 26 mi. gas lines, vicinity and area of Memphis, TENNESSEE. Texas Gas Transmission Corp., Box 577, Owensboro, Ky.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Wise Contg. Co.,** 8 and Grace Sts., Richmond, Va. CA **$1,317,000.** PUBLIC WORKS CENTER transportation facilities, NOY 70221, Spec. 30144, NORFOLK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Aug. 26. CD 9/2, under LB.

Carter-Hassel Contg Co., Waco and Naval Base Rd., Norfolk, Va. LB **$551,610.** 1 story masonry Chesterfield Heights Elementary SCHOOL, NORFOLK, VA. School Bd., Bank and Charlotte Sts., Norfolk, Va. Bids Sept. 24. CD 9/3.

▲† **Lang Constr. Co.,** 39th and Queen St., Hampton, Va. CA. Approx. **$3,000,000.** ADMINISTRATION BLDG., BARRACKS, BOQ, MESS HALL and MISC. BLDGS. NOY 72418, YORKTOWN, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. CD 8/14.

▲ **C. D. Spangler Constr. Co.** (Sponsor) 1028 S. Blvd., Charlotte, N. C. Owner Builds. **$8,000,000,** construct, manage, finance 1,084 Wherry Act HOUSING units, Tarawa Terrace No. 2, for Camp Lejeune, JACKSONVILLE, N. C. P. Wks. Office, 6th Naval Dist., Naval Base, S. C.

† **T. A. Loving Constr. Co.,** Wayne Bank Bldg., Goldsboro, N. C., LB **$767,475.** enlisted men's BARRACKS at New River Marine Corps Air Facility; Spec. 35201. JACKINSONVILLE, N. C. Dpt. Navy, Officer in Charge of Constr., Box 365, Naval Base, S. C. Bids Sept. 25. CD 8/27.

V. Lyn Brabham, Florence, S. C. LB **$400,000.** MOTOR COURT, DILLON, S. C. Allan H. Schaffer, Dillon, S. C. Bids Sept. 9. CD 8/29.

C. F. Sheeley, 216 Georgian Hotel, Atlanta, Ga., CA, **$100,000,** truck repair SHOP, ATLANTA GA. Akers Motor Lines Inc., 723 Forrest Rd. N. E., Atlanta, Ga.

▲ **Tanglewood Homes,** c/o Hugo R. Broleman, Jr., archt., 101 W. Pine St., Orlando, Fla., Owner Biulds, **$4,000,000,** 600 RESIDENCES, WINTER PARK, FLA. CD 9/10.

Fred Watkins, Cotton Ave. and 4 St. W., Birmingham, Ala., CA, **$100,000,** WAREHOUSE, BIRMINGHAM, ALA. Western Union Parisian Co., c/o contractor.

† **T. H. Pearce & Co.,** P. O. Box 1293, Columbus, Ga., LB, **$773,476,** missile assembly SHOP at Redstone Arsenal, Inv. 53-9, HUNTSVILLE, ALA. U. S. Eng., Post Office Bldg. Mobile, Ala. Bids Aug. 27. CD 7/30.

▲ **D. S. McClanahan & Sons,** Columbus, Miss. CA, Est. **$3,500,000.** chemical PLANT, COLUMBUS, MISS. Oldbury Electro-Chemical Co., Buffalo Ave. and 50 St., Niagara Falls, N. Y.

Martin S. Rothschild, 4303 Talia St., New Orleans, La. Owner Builds. Est. **$400,000.** 47 RESIDENCES, NEW ORLEANS, LA.

▲ **Gervais F. Favrot Co.,** Balter Bldg., New Orleans, La. CA est. **$3,000,000.** HOTEL OFFICE, NEW ORLEANS, LA. Harry Latter, c/o contractor.

▲ **Ford, Bacon & Davis, Inc.,** 39 Broadway, New York, N. Y. CA est. **$1,250,000,** gas compressor STATION, LOGANSPORT, LA. Southern Natural Gas Co., Watts Bldg., Birmingham, Ala.

(Continued on page 116)

Eimco's Cut Loading Costs on Airport Jobs

Loading Time Chart — In Minutes Per Truck Average Conditions*

MATERIAL	SIZE OF TRUCK			
	Light 2 - 4 Ton	6 Yd.	10 Yd.	15 Yd.
Sand (In Place)	.4 - .6	.6 - .8	1.0 - 1.4	1.5 - 2.0
Gravel (In Place)	.5 - .7	.6 - .9	1.0 - 1.5	1.5 - 2.3
Stockpiled Material	.4 - .7	.6 - .9	1.0 - 1.5	1.5 - 2.3
Quarry Rock (Small)	.7 - .9	1.0 - 1.3	1.7 - 2.3	2.5 - 3.3
Tunnel (Rough Bottom)		1.5 - 2.2	2.7 - 4.0	

*Quoting time from jobs where machines were factory equipped for service intended. These are actual loading time studies on a "per truck loaded" basis. Time for shifting trucks should be added.

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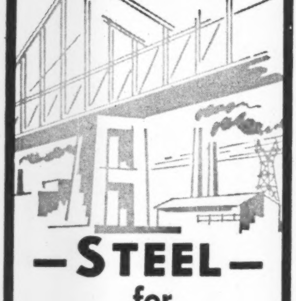

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(Continued from page 114)

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ Ill., **Waukegan**—B.A. 10/16—North Shore Sanitary Dist., Waukegan, sewage treatment works, interceptor and outfall sewers, sanitary sewers in Waukegan Zion, North Chicago, Lake Forest, Highland Park, Gurnee and Lake Bluff, and Highwood, $5,000,000. Greeley & Hanson, 220 S. State St., Chicago, Zone 4, engrs. CD 8/26.

BIDS ASKED—BUILDINGS

Ill., **Chicago**—SCHOOL—B.A. 10/15—Lutheran High School Assoc., 77 W. Washington St., Zone 2, 3 story, bsmnt., steel, brick, high school, Mayor Menard, Cullom and Bertreau Aves. $900,000. Perkins & Will, 309 Jackson Blvd., Zone 6, archts. CD 7/3.

▲ Ill., **Peoria**—SCHOOL—B.A. 10/22—School Dist. 310, 101 Swords Circle, 2 story, bsmnt., community high school, Lancaster and Airport Rds. $1,000,000. Pfuhl & Schidele, Finance Bldg., Kansas City, Mo., engrs. Hewitt & Bastian, First National Bank Bldg., archts. CD 4/18/50.

† O., **Lima**—BOILER—B.A. 10/21—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., boiler house exten. and steam lines, Lima Ordnance Depot, Serial No. ENG 46-022-53-9. CD 9/15.

SOON LETS CONTRACT—BUILDINGS

▲ Mich., **Livonia**—SHOPPING CENTER—Sheldon Co., Warren Sheldon, pres., 32121 Plymouth St., soon lets contract 250,000 sq. ft. brick, concrete shopping center, 155x560 ft. main bldg., parking facilities, $5,000,000, Charles N. Agree, 1140 Book Bldg., Detroit, Mich., archt. CD 8/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

A. W. Burns & Sons Constr. Co., 424 Woodland Ave., Columbus, O. CA. **$123,890**, sidewalks on Ridgeview, Farleigh, Harwitch, Jervis and Edinton Rds., UPPER ARLINGTON, O. City, Upper Arlington, O.

† **The Ohio Engineering Co.**, 105 Sixth St., Lorain, O., LB **$562,483**, 115,000 sq. yd. paved open storage areas, 15,000 yds. vehicle test track, 12,000 yds. main access roads and 6,600 sq. yd. concrete apron, Lima Tank Depot, LIMA, O. U. S. Eng., 237 Fourth Ave., Huntington, W. Va. Bids Sept. 23. CD 9/8.

WISCONSIN—State Hy. Comn., Madison,
Fletcher Constr. Co., Box 67, Menomonie, Wis., CA, **$532,660** grading, structures 7.845 mi. Contract 1, U.S.H. 41 Relocation (East County Line-North County Line) Road and Brownsville-U.S.H. 41 Road U.S. Hy. 41 and S.T. Ty. 49, T 0538 (2), Dodge Co.;
W. L. Kimmes Inc., 104 National Bldg., Superior, Wis., CA, **$188,765**, base course 3.535 mi. Contr. 1, Anderson Lake—Lakewood Road, S.T. Hy. 32, T 042-1 (5), Oconto Co. Bids Sept. 23, CD 9/26, under LB.

WISCONSIN—State Hy. Comn., Madison,
L. G. Arnold, Inc., P.O. Box 228, Eau Claire, Wis., CA, **$978,606**, c. conc. and bridge 0.886 mi. Option "C", Contr. 1, Kimberly-Little Chute-Combined Locks Road, Fox River Bridge and approaches C. T. Hy. "N", Outagamie Co. Bids Sept. 23. CD 9/26, under LB.

Jeffress-Dyer, Inc., Ann Arbor, Mich. LB **$939,900**, est. $1,000,000. women's swimming pool facility, ANN ARBOR, MICH. University of Michigan, Harlan H. Hatcher, pres., Ann Arbor, Mich. CD 8/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

R. Hanson Co., 2646 N. Moreland Blvd., Cleveland, O. CA. **$953,210**, est. $750,000. 1 story brick, stone bus GARAGE, capacity 100 busses, at Windermere Station on Hayden Ave., East Cleveland, CLEVELAND, O. Cleveland Transit System, 1404 E. 9 St., Cleveland, 14, O. A. N. Rabori of DeLeuw, Cather & Co., 150 N. Wacker Dr., Chicago, Ill., engr.-archt. Awarded Sept. 16. CD 8/12 under LB.

Paul I. Cripe, Lemcke Bldg., Indianapolis, Ind., Owner Builds, **$750,000**, 85 homes, east side of INDIANAPOLIS, IND.

Charles E. Walters, 6364 Guilford Ave., Indianapolis, Ind., Owner Builds, **$700,000**, 88 HOMES, INDIANAPOLIS, IND.

Wilhelm Constr. Co., 3914 Prospect St., Indianapolis, Ind., CA, **$550,000**, EDUCATIONAL UNIT with CHAPEL, INDIANAPOLIS, IND. Broadway Methodist Church, 2820 Broadway, Indianapolis, Ind. McGuire & Shook, Fletcher Trust Bldg., Indianapolis, Ind., archts. CD 4/11/51.

Welso Constr. Co., 2345 S. Crawford Ave., Chicago, 23 Ill., CA, **$600,000**, steel, brick WAREHOUSE, cor. Grand Ave. and Long St., CHICAGO, ILL. Chase Brass & Copper Co., 1300 W. Harrison St., Chicago, Ill. Bruce A. Gordon Co., 1 N. La Salle St., Chicago 2, Ill., engr. Awarded Sept. 18.

J. Emil Anderson & Son, 1809 Balmoral St., Chicago, 40, Ill., CA **$500,000**, 57,000 sq. ft. FACTORY addn., MORTON GROVE, ILL. H. M. Harper Co., 8200 Lehigh Ave., Morton Grove, Ill. Arthur M. Heda, 1809 Balmoral St., Chicago, 40, Ill., archt. Awarded Sept. 23.

▲ **Geo. A. Fuller Co.**, 111 W. Washington St., Chicago 2, Ill., CA, **$1,300,000**, RESEARCH BLDG. on factory premises, SKOKIE, ILL. G. D. Searle & Co., Searle Parkway, Skokie, Ill. Herbert G. Banse, 400 W. Madison St., Chicago 6, Ill., archt. Awarded Sept. 16.

Spoon & Shackett, Ira J. Spoon, 5372 W. Outer Dr., Detroit, Mich. Owner Builds. Est. **$750,000**. seventy

1 story, brick ranch type HOUSES, **Westhampton west** of Coolidge Rd., OAK PARK, MICH.

▲ **Donald Roberts,** 1401 Dime Bldg., **Detroit, Mich.** Owner Builds. Est. **$1,300,000.** 125 brick, single HOMES, Burton St. near 10 Mile Rd., OAK PARK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Mo., St. Ann—B.A. 10/13—City, Martha Hart, clk., City Hall, 10128 St. Charles Rock Rd., Zone 14, 1 mi. 24 in. and ½ mi. 18 in. interceptor sewers. $65,000. Plans deposit $20. Joyce Co., 802 Chestnut St., St. Louis, Zone 1, engr.

▲† **Mo., Sedalia**—RUNWAYS—B.A. 10/14—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., runways, taxiways, aprons, Sedalia Air Force Base, Eng. 23-028-53-17, $5,697,000. Howard, Needles & Tammen, 921 Walnut St., Kansas City, Mo., engrs. CD 7/15, under LB.

Mo., Sikeston—B.A. 10/20—City, Joe Cravens, mayor, exten. 120,350 lin. ft. 8- to 30-in. sanitary sewers, 10,905 lin. ft. 4- to 12-in. pressure mains, 6 lift stations, appurtenances, sewage treatment plant, Russell & Axon, 408 Olive St., St. Louis, Zone 2, engrs. CD 2/5.

† **South Dakota**—RAILROAD RELOCATION—B.A. 10/21 U. S. Eng., 1709 Jackson St., Omaha, Neb., constr. Chicago, Milwaukee, St. Paul & Pacific R. R. Relocation, Stage IV, Inv. 25-066-53-110. CD 9/24.

▲ **Mo., St. Louis**—HANGAR—B.A. 10/28—City, c/o Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, Zone 3, 125x270 ft. hangar for maintenance, etc. 4-engine plant, offices, Lambert-St. Louis Municipal Airport, Robertson. $1,340,000, Trans-World Airlines, Inc., c/o Municipal Airport, Kansas City, Mo., lessee. CD 10/17/51.

BIDS ASKED—BUILDINGS

Mo., North Kansas City—WAREHOUSE—B.A. **10/10**—Hershey Wholesale Grocery Co., c/o Herman Heishman, pres., 417 Grand St., Kansas City, Mo., 100,000 sq. ft. warehouse, docks, truck maintenance garrage etc., $500,000. Kivett & Myers, Angus McCallum, 1016 Baltimore St., Kansas City, Mo., archts. W. L. Carsell, 912 Baltimore St., Kansas City, Mo., mech. engr. Pfuhl & Shideler, Finance Bldg., Kansas City, Mo., struct. engrs. CD 9/3.

▲ **Kan., Abilene**—SCHOOL—B.A. 10/14—Bd. Educ., Dist. 5, c/o W. C. Robinson, supt., Abilene, high school at Cedar and Rte. 40, $1,357,000. Plans deposit $50. Jas. W. Radotinsky, 1401 Fairfax Trafficway Hy., Kansas City, Kan., archt. Murray & Clayton, Abilene, assoc. archts. CD 3/3.

SOON LETS CONTRACT—BUILDINGS

Wyo., Casper—DEPARTMENT STORE—**Fred Goodstein,** 340 S. Centre St., soon lets contract 2 story bsmnt., 110x255 ft. department store and 1 story, 30x95 ft., service bldg. $600,000. Walter Kuetzing, Stapleton Bldg., Billings, Mont., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Kansas City Bridge Co.,** 928 Broadway, Kansas City, Mo. and **Massman Constr. Co.,** 20 W. 9 St., Kansas City, Mo. LB. **$2,182,360,** est. $1,834,000. 4 piers in bridge over Missouri River at Paseo, KANSAS CITY, MO. Jackson Co., c/o Court House, Kansas City, Mo., and Clay Co., Court House, Liberty, Mo.

Zontelli Bros., Ironton, Minn. CA. **$805,807,** 710 mi. rural distr. lines, Jones, Lyman and Stanley Counties, Proj. South Dakota 42 A4-Lyman, SOUTH DAKOTA. West Central Electric Co-operative, Murdo, S. D. Bids Aug. 13. CD 8/27, under LB.

Cities Service Co., Bartlesville, Okla. Owner Builds. Est. **$550,000.** pipe line from Lawrence, Kan. to point 2½ mi. from Leavenworth 16 mi., KANSAS. CD 5/23.

Austin Paving Co., 1000 Singleton Blvd., Dallas, Tex. CA. **$624,618.** West Dallas Paving, (Housing Proj.) DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr. Dallas, Tex. Bids Sept. 11. CD 9/23, under LB.

Ben Sira & Co. & McKenzie Constr. Co., 6419 Maple St. Dallas, Tex., LB **$538,129.** 43,800 lin. ft. conduit or water supply lines from Field Wells to city limits, Contr. 652;

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. E. Dunn Constr. Co.,** 929 Holmes St., Kansas City, Mo. CA **$3,230,407.** Guinotte Manor HOUSING incl. fifty-eight 2 story bldgs., 454 housing units, KANSAS CITY, MO. Kansas City Housing Auth., c/o Paul R. McCauley, City Hall, 414 E. 12 St., Kansas City, Mo. Bids Sept. 26. CD 8/19.

▲ **Robert Paulus Constr. Co.,** 3441 Morganford Rd., St. Louis 16, Mo. LB **$1,170,000.** general contract;
Phil L. Miller Plumbing and **Heating Co.,** 131 St. Francis St., Florissant, Mo. LB **$317,630,** plumbing;
Corrigan Co., 2525 St. Louis Ave., St. Louis 6, Mo. LB **$588,592.** heating for 6 story, 35x243 ft. brick, concrete, steel, stone HOSPITAL wing addn. with 1 story, bsmnt. section 28x125 ft., present 1, 2 and 3 bldgs. rebuild and connect to addn., ST. LOUIS, MO. St. Louis Childrens Hospital, Roy D. Kercheval, pres., 500 S. Kingshighway, St. Louis 10, Mo. Bids Sept. 24. CD 9/3.

▲ **L. O. Stocker Co.,** 3928 Lindell Blvd., St. Louis 8, Mo. CA Est. **$2,000,000.** design and construct 1 story, steel, concrete 2600,000 sq. ft. MANUFACTUR-

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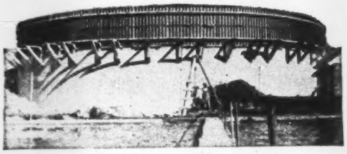

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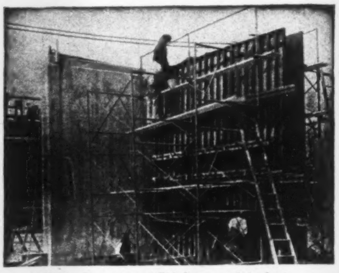

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ING BLDG. on 10 acre tract, Union and Bircher Blvds., ST. LOUIS, MO. Gaylord Container Corp., Cotton Belt Bldg., 111 N. St., St. Louis 2, Mo.

Manhattan Constr. Co., 906 Manhattan Bldg., Muskogee, Okla., CA **$903,680** JUNIOR HIGH SCHOOL, FORT SMITH, ARK. Fort Smith School Board Fort Smith, Ark. Bids Sept. 23. CD 9/4.

Farnsworth & Chambers, Inc., Box 74, Houston, Tex., LB **$474,180**. 68,000 sq. ft. French HIGH SCHOOL, BEAUMONT, TEX. Beaumont Independent School Dist., Beaumont, Tex. Bids Sept. 17. CD 8/18.

H. A. Mittelberger & Sons, 3215 Everett St., Houston, Tex. CA Approx. **$450,000**. 50 DWELLINGS, HOUSTON, TEX. H. A. Mittleberger, 3215 Everett St., Houston, Tex. CD 9/5.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Calif., Muroc**—ROADS and STREETS—B. A. 10/17—U. S. Eng., 751 S. Figueroa St., Los Angeles, roads and streets, Edwards Air Force Base, ENG. 04-353-53-31, $1,800,000. CD 4/5/51.

† **Calif., Muroc**—SEWAGE TREATMENT PLANT—B. A. 10/21—U. S. Eng., 751 S. Figueroa St., Los Angeles, sewage treatment plant, Edwards Air Force Base, ENG. 04-353-53-39, $250,000. CD 4/5/51.

† **Arizona**—B. A. 10/23—Bureau Reclamation, Dpt. Interior, Yuma, earthwork, concrete lining, structures, Wellton Canal, Station 618 plus 25.75 to Station 1059 plus 25.23, Lateral M-14.8 Station 0 plus 68.46 to Station 17 plus 66.00 and Unit 1 Wellton Distribution System, Wellton-Mohawk Div.. Gila Proj. Approx. 6 mi. northeast of Wellton, Spec. DC 3808. CD 9/21/44.

† **Washington**—TURBINES, etc.—B. A. 10/28—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing two vertical-shaft, 8,500-hp. 240-rpm. hydraulic turbines; two vertical-shaft 2,600 hp., 450-4pm hydraulic turbines; and two vertical-shaft, centrifugal pumps each with 167 cfs capacity under total head of 108 ft. for Chandler Power and Pumping Plant, Yakima Proj., Inv. No. DS-3805; adv. ENR 10/9.

† **Wash., Spokane**—AIRMEN'S CLUB—B. A. 11/3—U. S. Eng., City-County Airport, Walla Walla, 3500 sq. ft. frame airmen's club at Fairchild Air Force Base, ENG. 45-108-53-38. Plans deposit $10. CD 9/18/51.

† **Idaho, Mountain Home**—VAULT—B. A. 11/4—U. S. Eng., City-County Airport, Walla Walla, Wash., transformer vault for GCA facilities at Air Force Base, Inv. 53-19. CD 9/18/51.

† **Wash., Spokane**—BUILDINGS, etc.—B. A. 11/4—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 4 masonry buildings, 10,700 sq. ft., grading, etc. for radio and communications, Fairchild Air Force Base, ENG. 45-1085-3-39. Plans deposit $25. CD 9/18/51.

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—HOUSING—B. A. 10/21—Housing Auth. of City of Los Angeles, 1401 E. First St., Imperial-Comtpn low-rent housing $5,000,000. Extended date. Paul R. Williams, 3757 Wilshire Blvd., Los Angeles, archt. CD 8/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise,
Aslett Constr. Co., Twin Falls, Idaho, CA **$701,658** roadbed and plant. surf. 8.374 mi. Old Oregon Trail, Cassia and Power Counties. Awarded Sept 11. CD 1/22/46.

† **Gunther & Shirley Co.**, 704 W. Olympic Blvd., and Trepte Constr. Co., Kettner Bldg., San Diego, Calif., LB. **$265,000**, installing storm drain, Increment 3 at U. S. Navy Air Facility, Litchfield Park, NOY 71106, Spec. 32660, GOODYEAR, ARIZ. Dpt. Navy, San Diego, Calif. Bids Sept. 18. CD 8/29.

C. M. Halvorson, Inc., 3818 N. E. Sandy St., Portland, Ore., LB, **$112,669**, storm sewer outfall on Hy. 1, Vancouver Freeway, Columbia River to 6 St., Clark Co., WASHINGTON. State Hy. Dpt., Olympia, Wash. Bids Sept. 23. CD 9/10.

WASHINGTON—State Hy. Dpt., Olympia,
Sather & Sons, Yardley, Wash., LB, **$239,531** bit., steel girder undercrossing 0.966 mi. Hy. 10, F.A.P.F-FG-FAGH 030-1 (5), Grant and Douglas Counties;

Asphalt Paving & Engr. Co., P. O. Box 106, Tacoma, Wash., LB **$175,560**, plant mix 4.994 mi. Hys. 21-A and 21 at Poulsbo, F.A.S. S-0998 (4), Kitsap Co. Bids Sept. 23. CD 9/10.

† **D. D. Altermatt & Creasey**, P. O. Box 365 Santa Maria, Calif., LB, **$230,250**, pumps, islands and bulk storage for fuel, Spec. 1696, BEALE AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Sept. 19. CD 9/3.

† **Erickson & Campbell**, 800 "R" St., North Sacramento, Calif., LB, **$748,732**, est. $776,310, central heating plant, steam distr. sys. for hospital area, Spec. 1579, BEALE AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Sept. 19. CD 8/25.

McGillivray Constr. Co., P. O. Box 873, Sacramento, Calif., LB, **$89,740**, removing track and paving "C" St. between 19 and Alhambra Blvd. and on Alhambra Blvd. between C and O Sts., SACRAMENTO, CALIF. City, City Hall, Sacramento, Calif. CD 11/15/50.

Owl Truck & Construction Co., 500 S. Alameda St., Compton, Calif., LB, **$684,480**, clearing, stripping and grouting Cherry Dam site, under Hetch Hetchy Contract 252, SAN FRANCISCO, CALIF. P. Utilities Comn., City Hall, San Francisco, Calif. Bids Sept. 23. CD 9/12.

City, 1418 Mission St., South Pasadena, Calif., received no bids Sept. 17, imprv. Garfield Ave. and other streets, SOUTH PASADENA, CALIF. **$60,000.**

BUILDINGS

LOW BIDS AND CONTRACTS

H. R. Meadows & Sons, 1717 W. Buchanan St., Phoenix, Ariz., CA, **$300,000,** 30-unit MOTEL, MESA, ARIZ. Maricopa Developers, Inc., Mesa, Ariz. Lester Bryon, 319 E. Coronado Rd., Phoenix, Ariz., archt. Awarded Sept. 20.

Dahlgren Constr. Co., 1700 21 Ave. S., Seattle, Wash., LB, **$734,700,** general contract seven 1 and 2 story masonry Veterans' HOME bldgs., to provide 228 housing units, RETSIL, WASH. State Dpt. P. Instruction, Olympia, Wash. Bids Sept. 23. CD 8/28.

Paul W. Speer, Inc., 3425 Cahuenga Blvd., Los Angeles, Calif., LB, **$575,900,** Enterprise Junior High SCHOOL, addns., alterations, COMPTON, CALIF. Compton Union High School Dist., 601 S. Acacia St., Compton, Calif. Bids Sept. 19. CD 9/15, under LB.

Guy F. Atkinson, Box 259, Long Beach, Calif., LB, **$788,500** superstructure for main bldg. of Valley STEAM PLANT, LOS ANGELES, CALIF. Dpt. Water & Power, 207 S. Broadway, Los Angeles, Calif. Bids Sept. 18. CD 9/4.

Wm. P. Neil, 4814 Loma Vista St., Vernon, Calif., CA, **$102,000,** 1 story, 15,000 sq. ft., concrete WAREHOUSE, EAST LOS ANGELES, CALIF. Crucible Steel Co., 3330 Malt Ave., East Los Angeles, Calif.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Canoro Constr. Co.,** P.O. Box 1363, Fairbanks, Alaska, CA. **$404,494,** 9 shop bldgs. at Ladd and Eielson Air Force Bases, Inv. 53-6, ALASKA. U. S. Eng. Anchorage, Alaska. Bids Sept. 16. CD 9/24, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

B. C., Comox—B.A. 10/14—Defence Constr. (1951) Ltd., 360 Homer St., Vancouver, water supply chlorinator house and sewage treatment plant, Plans deposit $100; water and sewerage sys. extensions, Plans deposit $100. J. L. Adams, 360 Homer St., Vancouver, engr.

Ont., Brampton—B.A. 10/27—Town, J. Galway, clk., Municipal Offices, Brampton, sewage treatment plant alterations, extens. $260,000. Plans deposit $25. James F. MacLaren Assoc., 705 Yonge St., Toronto, engrs. G. F. Kimball, c/o owner, town engr. CD 4/9.

BIDS ASKED—BUILDINGS

▲ **Que., Hull**—PRINTING BUREAU—B.A. 10/22—Dpt. P. Wks., Hunter Bldg., completion superstructure of construction, National Printing Bureau $2,500,000. Plans deposit $200. **E. A. Gardner, c/o owner,** archt. CD 7/9/48.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Assiniboia Engineering Co. Ltd., 1501 9 Ave. East, Calgary, Alta., CA. runway repairs and drainage at R.C.A.F. Station, INNISFAIL, ALTA. Defence Constr. (1951) Ltd., Winnipeg, Man. Bids Sept. 3, awarded Sept. 15. CD 8/27.

BRITISH COLUMBIA—Province of B. C., Douglas Bldg., Victoria,

Campbell-Bennett Ltd., 1718 W. 5 Ave., Vancouver, B. C., CA. **$821,607,** Victoria to Parsons Bridge Section Trans-Canada Hy. Bids June 20, awarded Sept. 12. CD 6/30, under LB.

Eastern Woodworkers Ltd., 14 Brother St., New Glasgow, N. S., CA. **$350,000,** 50 unit housing at airport area, GANDER, NEWFOUNDLAND. Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. C. J. Connolly, c/o owner, regional engr. Awarded Sept. 19. CD 8/12.

W. E. Emerson & Sons, St. John, N. B., CA. **$298,310** underground steam distr. sys. at air force base, GREENWOOD, N. S. Defence Constr. Ltd., 1032 Gottingen St., Halifax, N. S. Bids Apr. 8. CD 3/19.

Fundy Constr. Co., Ltd., Isleville St., Halifax, N. S., CA. **$450,000,** GUNNERY RANGE at Osborne Head, near Halifax, N. S. Defence Constr. Ltd., 1032 Gottingen St., Halifax, N. S. Bids Aug. 19, awarded Sept. 22. CD 8/11.

McNamara Constr. Co. Ltd., 42 Industrial St., Leaside, Ont., CA. **$655,000,** wharf imprv. incl. removal 50,000 cu. yd .lake bottom, HAMILTON, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Awarded Sept. 22. CD 8/2/49.

Ontario Construction Co. Ltd., Box 36, St. Catherine, Ont., CA. **$225,000** new lock at Port Carling between Lake Joseph and Lake Muskoka in Gravenhurst district, PORT CARLING, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. G. N. Williams, c/o owner, deputy minister and ch. archt. Awarded Sept. 19.

Lightfoot Constr. Co., Picton, Ont., CA. **$66,313,** sewers and water mains in Ann St., PRESCOTT, ONT. Town, Prescott, Ont. Bids Sept. 19.

SASKATCHEWAN—Province of Sask., Regina,

Maccam Constr. Ltd., Moose Jaw, Sask., CA. **$78,000.** construct Hy. 13, Regina. CD 10/1/43.

W. C. Wells Constr. Co. Ltd., 7 104 Ave. F.N., Saskatoon, Sask., CA. **$90,000,** driveways, sidewalks at housing development, SASKATOON, SASK. Govt of Canada, Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man.

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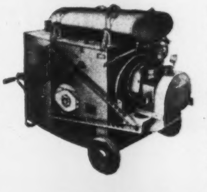

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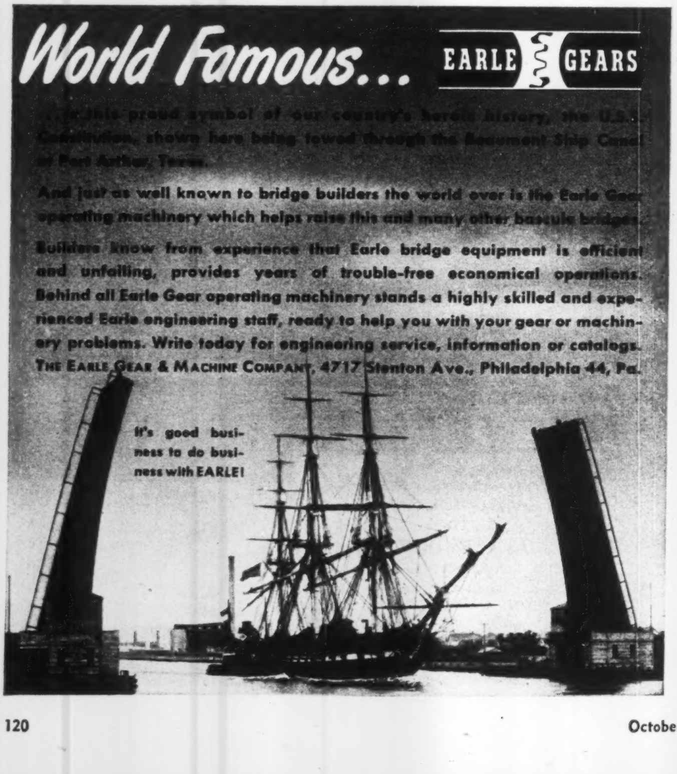

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LOW BIDS AND CONTRACTS

Poole Constr. Co. Ltd., 10503 109 St., Edmonton, Alta., CA. **$300,000.** WAREHOUSE, EDMONTON, ALTA. J. I. Case Co. Ltd., 93 St. and 106 Ave., Edmonton, Alta. CD 8/9/51.

Eastern Woodworkers Ltd., Brother St., New Glasgow, N. S., CA. **$700,000.** 100-unit low rental HOUSING, ST. JOHN'S, NEWFOUNDLAND, Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. C. J. Connolly, c/o owner, regional engr. Bids July 15, awarded Sept. 19. CD 7/1.

J. P. Desrochers Co. Ltd., 59 Strathern Ave., Montreal West, Que., CA. **$165,000**, rein.-con., brick GARAGE exten., MONTREAL, QUE. J. A. Touchette, 2175 Papineau Ave., Montreal, Que. CD 6/2.

Bruno Constr., Inc., 1015 Atwater Ave., Montreal, Que., CA. **$500,000**, two 4 story, bsmnt., 76x140 ft., rein.-con., brick APARTMENT, Dupuis Ave., MONTREAL, QUE. Kalman & Seigler, 1200 St. Alexander St., Montreal, Que.

Aylmer Corp., 1510 Drummond St., Montreal, Que., Own Forces, and Separate Contracts, **$327,000.** APARTMENT, Cote Ste. Catherine Rd., MONTREAL, QUE. M. M. Kalman, 1200 St. Alexander St., Montreal, Que., archt.

Proposed Projects

WATER SUPPLY

Ark., Newport—City, Municipal Water Comn., voted bonds, new water system, **$325,000.** Marion L. Crist & Assocs., Union Life Bldg., Little Rock, Ark., consult. engrs. CD 8/21.

Colo., Golden—Pleasant View Sanitation Dist., Golden, voted bonds, water sys. imprvs. **$290,000.**

Ind., Lawrence—Lawrence Water Works Co., Lawrence, repairs, remodeling WW. **$350,000.**

▲ **O., Columbus**—City, City Hall, third waterworks plant and accompanying installations at dam. **$8,000,000.** CD 6/27/51.

Okla., Duncan—City, bond election Nov. 18, addnl. water supply. **$555,000.** V. V. Long & Co., Concord Bldg., Oklahoma City, consult. engrs.

▲ **Tex., Dallas**—City, City Hall, Main and Harwood Sts., 48 in. c.i. water main to serve Oak Cliff area from new Carrollton Water Plant to Westmoreland and Singleton. **$1,300,000.** Koch & Fowler, 3900 Lemmon St., consult. engrs. CD 5/8.

Va., South Boston—City, City Hall, 3 m.g.p.d. water treatment plant. **$800,000.** Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs. CD 5/5.

Wash., Seattle—Water Dist. 42, 16906 15 Ave. N.E., voted bonds, enlarge, imprv. water supply sys. **$220,000.** CD 9/5.

Wyo., Casper—City, City Hall, bond election Nov. 4 municipal water system expansion and imprv. **$775,000.** CD 9/8.

SEWERS, WASTE DISPOSAL

Calif., Menlo Park—Menlo Sanitary Dist., Menlo Park, voted **$310,000** bonds, sanitary sewers. CD 8/20.

Calif., Salida—Salida Sanitary District, Geo. W. Prickett, chn., Salida, voted bonds, sewers, **$210,000.**

▲ **Calif., South Laguna**—South Laguna Sanitary Dist., South Laguna, voted **$1,250,000** bonds, sewer imprvts. CD 8/18.

Calif., Turlock—City, City Hall, voted **$350,000** bonds, sewer farm. CD 9/12.

▲ **Colo., Brighton**—South Adams County Sanitation Dist., Derby, defeated bonds, sewer lines and sewage treatment plant, **$1,050,000.** Ripple & Howe, 426 Cooper Bldg., Denver, consult. engrs. and archts. CD 9/4.

Ill., Libertyville—Village, Village Hall, storm sewers **$250,000.** Paul Johnson c/o owner, consult. engr.

Mich., Ishpeming—City, sewage disposal plant, sewer mains, treatment facilities, **$250,000**, Greeley & Hansen 220 S. State St., Chicago, Ill., consult. engrs. CD 11/7/45.

Mich. Williamston—City, City Council, bond election Nov. 4, sewage disposal plant, **$100,000**; treatment facilities, sanitary sewers, **$160,000.** CD 10/25/44.

▲ **O., Canton**—City, **$1,850,000** bond election Nov. 4, sewers. CD 8/15/49.

O., Kent—City, **$650,000** bond election Nov. 4, sanitary sewerage sys. CD 11/20/47.

O., Lisbon—Village, $150,000 bond election Nov. 4, sewage plant. **$750,000.** CD 3/10/47.

O., Shelby—City, **$700,000** bond election Nov. 4, sewage disposal and treatment plant. CD 4/11/51.

Okla., Bartlesville—Tuxedo Sewer Dist. 1, Bartlesville, voted bonds, sewer district and disposal plant **$250,000.** Wood & Craig, Philtower Bldg., Tulsa, consult. engrs. CD 9/10.

Okla., Duncan—City, bond election Nov. 18, addnl. sanitary sewers and disposal, **$322,000.** V. V. Long & Co., Colcord Bldg., Oklahoma City, consult. engrs. CD 7/29.

Tex., Houston—City, City Hall, 900 Brazos St., storm sewers, Garden Oaks area, between Suebarnett and Shepherd and North Wakefield, 217 acres drained, **$225,000;** Alba Drive main to serve sect. west of Suebarnett St. to East of Golf Drive, 205 acres, **$265,000;** Golf Main Dr. main, to serve area west of Alba Dr. main to east of Apollo Dr., 192 acres,

(Continued on page 122)

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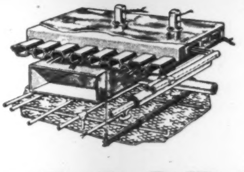

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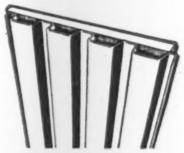
two men can lay 32 sq. ft. in 30 seconds!

These are steel subfloors. They are installed as fast as the frame is erected. Therefore they form immediate and permanent platforms for all subcontractors. By properly organizing the work, a contractor can cut 15 to 20% off over-all construction time. The architect saves a great deal of drafting time.

The steel cells of Q-Floor become raceways for all electrical systems. An electrician drills only a small hole and installs an outlet on any six-inch area of floor in a matter of minutes. Desks, business machines and partitions can be located with complete freedom, after tenants move in.



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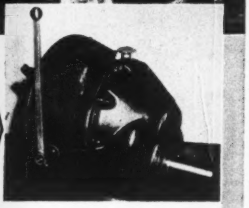

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(Continued from page 120)

$260,000; Turkey Gulley Main to serve area west of Golf Dr. and main area to Ella Blvd., 196 acres, $275,000. Charles R. Haile & Assoc. Inc., 2801 San Jacinto St., consult engrs. CD 6/6/51.

Va., South Boston—City, City Hall, approx. 11 mi. 12 to 30 in. interceptor sewer lines. $300,000. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs. CD 5/5.

Wash., Bellevue—Bellevue Sewer Dist., Bellevue voted bonds, sewage disposal system, $340,000.

Wis., La Crosse—City, storm and intercepting sewers, $760,000. Zenno Gorder, c/o owner, engr.

▲ **Newfoundland, Corner Brook**—Water & Sewerage Corp. of Corner Brook, H. A. C. Northover, mgr., Corner Brook, sewerage sys. $4,000,000. R. Del French, 7481 Upper Lachine Rd., Montreal, Que., consult. engr.

BRIDGES

Calif., Long Beach—Long Beach Harbor Dept., 1333 El Embarkadero, temporary by-pass bridge over Los Angeles River, on West Ocean Blvd. $175,000. R. R. Shoemaker, c/o owner, engr.

▲ **New Jersey and Pennsylvania**—Deleware River Port Auth. Camden, N. J.

Bridge over Delaware River from Gloucester, N. J. to Phila., Pa $91,000,000. Ammann & Whitney, 76 9 Ave. New York, 11, N. Y. Modjeski & Masters State St. Bldg Harrisburg, Pa., consult. engrs. CD 2/4/49.

O., Akron—City, Marvin L. Davis, service dir., Mill St. Bridge $225,000. CD 4/24/51.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Allegheny Co.—const. bridge over Monongahela River in Pittsburgh to replace Point Bridge, part of long-range Penn-Lincoln Parkway extens. proj. Approx. $2,000,000. U. S. Engineers approved plans. George S. Richardson, Park Bldg., Pittsburgh, consult. engr. C. H. Buckius, c/o owner, engr. CD 9/4/51, under Streets and Roads.

▲ **Alta, Edmonton**—City, City Hall, high level bridge for six-lane traffic, $7,500,000 or converting upper deck on present bridge for six-lane traffic, $2,692,000. CD 11/10/50.

STREETS AND ROADS

Ark., Newport—City, voted bonds, street imprvt. program. $125,000. CD 8/7.

Calif., Salinas—Bd. Supervs. Monterey Co., Court House, resurf. approx. 14 mi. from city limits to 3 mi. north of Gonzales, Alisal and Old Stage Roads, $392,000. CD 3/16/45.

▲ **Colo., Denver**—City and Denver Co., City and County Bldg., $1,471,000 bond election Nov. 4, street imprvs. CD 2/27/50.

▲ **O., Canton**—City, $3,500,000 bond election Nov. 4, street repairs. CD 8/15/49.

O., Cleveland—Cuyahoga Co., Court House, grading, draining, installing raised curbing, 28 ft. wide concrete repaving Columbus Rd. between Broadway and Bartlett Rd. at Bedford, $350,000; b. conc. resurf. Green Rd. between Cedar Rd. and Fairmount Blvd. at Beachwood and University Heights, $72,000; b. conc. resurf. Hilliard Rd. between Wagar and Bradley Rds., at Rocky River and Westlake, $175,000. Albert S. Porter, Standard Bldg., city engr. CD 11/13/51.

O., Delaware—City, $100,000 bond election Nov. 4, street imprvs.

Okla., Clinton—City, resurf. 30 blocks in business sect. $100,000. Del Kessaman, c/o owner, engr.

Tex., Fort Worth—City, c/o W. O. Jones, city mgr., By-pass Route on W. Rosedale from 8th Ave. to East-West Freeway, incl. 2 grade separations, one an overpass and other an underpass. $654,000. C. M. Thelin, Dir. P. Wks., engr. CD 9/17/51.

Wash., Walla Walla—City, City Hall, completing arterial route from Isaacs Ave., via Wilbur Ave. and Bryant Ave. to 9 St., $108,660, wid'n. E. Alder, Palouse to Wilbur Sts., $117,177; S. 2 Whitman St. to city limits, $72,652; Park St. Main to Alder Sts., $48,192, trunk bypass on Rees Ave., $38,420. CD 8/6/45.

EARTHWORK, WATERWAYS

Calif., San Jose—Santa Clara Valley Water Conservation Dist., 60 N. 2 St., voted $600,000 bonds, two cross valley canals, one from Coyote River near Metcalf Rd., the other a 2 mi. extension of Vasona Canal to Saratoga Creek. CD 7/28.

Mich., Crystal Falls — City, Municipal Electric Dpt., plans by Holland Ackerman & Holland, 20 N. Wacker Dr., Chicago, Ill., hydro-electric power plant imprvs., alterations, switchboard equipment, power generator, turbine engine, $200,000. CD 11/17/44, under Unclassified.

† **Montana**—Bureau Reclamation, Dpt. Interior, Hungry Horse Proj., Columbia Falls, constr. West Side Forest Service work center incl. clearing of 3 acres, 36x44 ft. combination bldg., 24x40 ft. barn, 28x36 ft. garage, water sys. incl. approx. 1,200 ft. 2 in. water line, sewerage sys. incl. septic tank and disposal area, approach road, etc. between Anna and Pearl Creeks west side of Hungry Horse Reservoir, approx. 23 mi. southeast of Columbia Falls.

▲† **Texas**—U. S. Eng., Box 61, Tulsa 2, Okla., expans. of Denison Red River Dam power house by 35,000 kw; new unit will be adjacent to existing power house, making a grand total of 105,000-kw. **$6,500,000.**

Tex., Harlingen—Arroyo Colorado Navigation Dit., Harlingen, defeated bonds Sept. 13, unloading adjustable ramp, **$60,000;** grounds preparation, grading, drainage, leveling, retaining walls all for spoil area, **$60,000;** excavating and leveling of grounds in certain areas, **$50,000;** railway lines, **$120,000;** service road incl. drainage structures, storm sewers, **$63,000;** water sys., **$50,000.** CD 8/20.

AIRPORTS

▲† **Calif., Miramar**—QUARTERS, ETC.—Dpt. Navy, San Diego, bachelor officers' quarters, mess, NOY 74057, Spec. 35092, **$1,000,000;** aircraft maintenance shop, line bldg., NOY 74051, Spec. 35086, **$750,000,** Naval Air Station. CD 1/8/51.

▲ **Colo., Denver**—AIRPORT—City and Denver Co., City and County Bldg., **$3,500,000,** bond election Nov. 4, expansion of facilities at Stapleton Airfield. CD 7/5/51.

▲ **Man., Winnipeg**—AIRPORT—Defence Constr. Ltd., 440 Kensington Bldg., airport at Stevenson Airport incl. runways, taxi-strips, hangars, offices, houses, mess halls, etc., for training of R.C.A.F. **$16,000,000.** H. K. Hignett, c/o owner, engr.

LATIN AMERICA

Mexica, Guadalajara—Televisora de Occidente, Guadalajara, plans television station. **$225,000.**

Mexico, Monterrey—Televisora del Norte, Monterrey, plans television station. **$200,000.**

Mexico, Reynosa—Televisora de Rio Bravo, Reynosa, plans television station. **$175,000.**

Mexico, Tijuana—Adolfo Curto, Gran Cinema, Tijuana, plans by Vernon W. Houghton, 124 W. 4 St., Los Angeles, Calif., U. S. A.; 1 story, 30,000 sq. ft. rein.-con. brick theatre. **$500,000.**

▲ **Mexico, Vera Cruz**—FACTORY—Cia. Inmobiliario Tamsa, direccion conoido, Vera Cruz, plans metallic pipe factory. **$1,650,000.**

Mexico, Vera Cruz—FACTORY, etc.—Francisco Cos Direccion Conocido, Vera Cruz, plans fertilizer factory. **$400,000;** cardboard box factory, **$300,000.**

PUBLIC BUILDINGS

Calif., Bakersfield—HOSPITAL—Greater Bakersfield Hospital Assn., Bakersfield, plans by Stone & Mulloy & D. P. Marraccini, Associate, 619 California St., San Francisco, 100-bed hospital. **$646,976.** CD 9/17.

▲ **Calif., El Monte**—HOSPITAL—Mid-San Gabriel Valley Hospital Dist., Hall of Records, Los Angeles, 150-bed rein.-con. hospital, **$3,000,000.**

Calif., Healdsburg—SCHOOL—Healdsburg Union High School Dist., Healdsburg, **$775,000** bond election Oct. 17, new Senior High School. CD 7/30.

Calif., Los Gatos—HOSPITAL—West Valley Hospital Dist., Los Gatos, **$750,000** bond election Nov. 18, hospital. CD 5/23.

Conn., Greenwich—SCHOOL—Town, Bd. Educ., Greenwich, plans by Sherwood Mills & Smith, 65 Broad St., Stamford, 1 story, brick, steel, concrete North Central School, North St. **$900,000.** CD 1/13/50.

▲ **Fla., Clearwater**—SCHOOLS— Pinellas Co. Bd. P. Instruction, Clearwater, plans by Philip F. Kennard, 105 Second Ave., St. Petersburg, 1, 2 and 3 story CBS brick Central Pinellas High School, **$1,000,000;** 1, 2 and 3 story 58th High School, **$1,000,000.**

▲ **Ga., Atlanta**—SCHOOL IMPRVS.—Fulton Co. Bd. Educ., Court House, voted bonds, school imprvs. **$2,000,000.** CD 8/5.

▲ **Ga., Decatur**—SCHOOL—DeKalb Co. Bd. Educ., Decatur, voted bonds, school imprvs. **$3,300,000.** CD 8/11.

Kan., Oakley—SCHOOL—Bd. Educ., Joint High School Dist. 2, voted **$600,000** bonds Sept. 16, high school.

Ky., Mount Sterling—HOSPITAL—Montgomery County Fiscal Court, **$660,000** bond election Nov. 4, 50-bed hospital, Meriweather Marye & Assoc., 236 E. Shore St., Lexington, archts. CD 8/15.

▲ **La., Angola**—PENITENTIARY—State Bldg. Auth., State Capitol, Baton Rouge, plans by Curtis & Davis, 822 Perdido St., New Orleans, imprvs. at State Penitentiary, **$4,000,000.**

▲ **La., Plaquemine**—HOUSING—Plaquemine Housing Auth., Plaquemine, plans by Joseph H. Gaylord & Co., Lafayette, 150 housing units, **$1,000,000.**

Me., Augusta—ARMORY—State, Military Defence Comn., Adjutant General Office, Augusta, plans by Bunker & Savage, 283 Water St., 1 and 2 story, 150x200 ft., brick, steel, concrete armory, Western Ave. **$750,000.** CD 7/1.

Md., Leonardtown—SCHOOL—St. Marys Co., Bd. Educ., Leonardtown, plans by Johannes & Murray, 855 Pershing Dr., Silver Spring, 1 story, 100x320 ft., brick, concrete, steel, concrete block school, **$500,000.**

▲ **Md., Upper Marlboro**—SCHOOL—Prince Georges Co., Bd. Educ., plans by Ross, Walton & Madden, 3518

(Continued on page 126)

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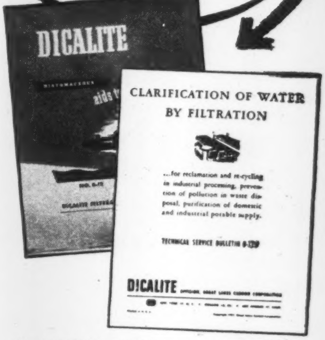

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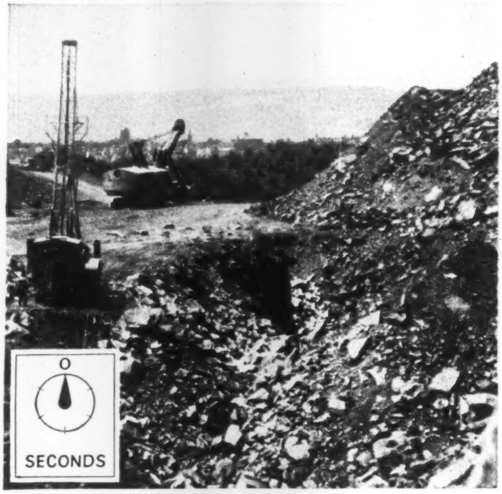

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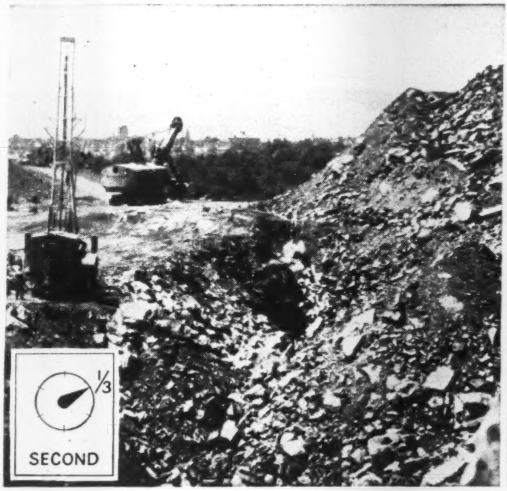
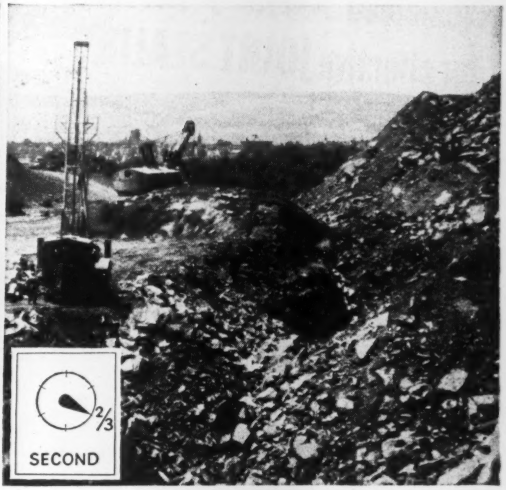
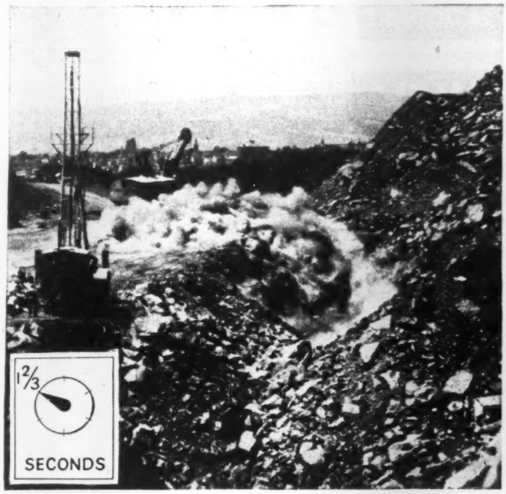


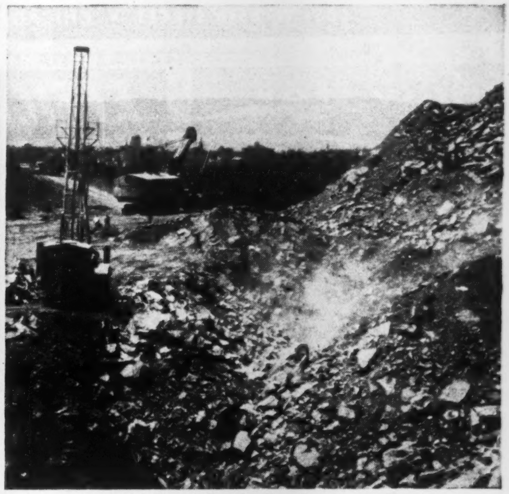
2. *⅓ second after detonation shows excellent confinement of blast.*



3. *Burden still receiving full power of explosives—no escaping gases.*



6. *Spent gases finally make a quiet exit. Burden completely shaken.*



7. *Height of final pile shows excellent displacement for easy digging.*

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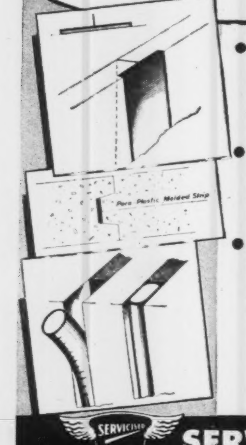

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• MOLDED STRIP
Para-Plastic Sealing Compound is molded into strips for sealing of keyed construction joints and cracks or breaks in vertical concrete surfaces. Concrete poured against the strip, after setting up, will bond with strip to form watertight seal.

• NARROW STRIP Pressure Seal
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(Continued from page 123)

R. I. Ave., Mt. Ranier, 1, 2 and 3 story, rein.-con., brick, steel, concrete block Beltsville Junior and Senior High School, Beltsville, **$2,000,000.**

Mass., Waltham—HOUSING—Waltham Housing Auth., 5 Brookway Rd., plans by Aldo A. Minotti, 681 Main St., 40 housing units, Proj. Mass 200, **$800,000.**

▲ **Mich., Grand Rapids**—JAIL—Bd. Supervs. Kent Co., Grand Rapids, $1,250,000 bond election Nov. 4, 2 story, brick, steel, concrete jail, Michigan Ave. Southwest, **$1,200,000.**

Minn., Goodhue—SCHOOL—Bd. Educ., A. F. Eppen, clk., voted **$620,000** bonds Sept. 6, school, Haarstick, Lundgren & Assoc., W. 1385 First National Bank Bldg., St. Paul, archts. **CD 8/20.**

Miss., Jackson SCHOOL—Jackson Municipal Separate School Dist., plans by Biggs, Weir & Chandler, 224 N. Congress St., Brinkley High School, **$500,000.** CD 9/3.

▲ **Mo., Jefferson City**—SCHOOLS—Bd. Educ., **$1,000,000** bond election Sept. 30, schools, Marshall & Brown, 1016 Baltimore St., Kansas City, Mo., archts.

N. Y., Garden City—HIGH SCHOOL—Bd. Educ., 110 Seventh St., plans by Eggers & Higgins, 100 E. 42 St., New York, Zone 17, high school, on 27 acre site between Merillon Ave. and Rockaway Rd. **$500,000.**

O., Bellevue SCHOOLS—Bd. Educ., **$947,000** bond election Nov. 4, schools.

O., Chagrin Falls—SCHOOL—Orange Bd. Educ., R.D. 1, Chagrin Falls, bond election Nov. 4; elementary school and present school addns., Moreland Hills. **$700,000.** CD 11/14/50, under O., Orange.

▲ **O., Canton**—CITY HALL—City, **$1,400,000** bond election Nov. 4, city hall.

O., Canton—GARAGE—City, bond election Nov. 4, garage, **$900,000.**

O. Wickliffe—SCHOOL—Bd. Educ., Wickliffe, voted **$800,000** bonds Sept. 9, 1 story grade school, Worden Rd. near Lakeland Blvd., 5 bus garage on high school grounds, imprv. playgrounds. CD 9/16.

O, Xenia—SCHOOL—Bd. Educ., Beavercreek Twp. R. 4, Xenia $470,000 bond election Nov. 4, school, **$718,000.** CD 8/7.

Okla., Sapulpa—HIGH SCHOOL—Bd. Educ., Sapulpa, high school. **$500,000.** J. O. Cudd, c/o owner, supt.

Okla., Shawnee—HOSPITAL—City, bond election Nov. 4, hospital. **$550,000.** Hugh Brown, Shawnee, archt.

▲ **S. C., Orangeburg**—HOSPITAL—Orangeburg Regional Hospital, Orangeburg, hospital addn. **$1,000,000.**

▲ **Tex., Harlingen**—HOSPITAL—Bd. for Texas State Hospitals and Special Schools 45 and Lamar Sts., Austin, approx. 500 bed tuberculosis hospital, **$2,600,000.**

▲ **Tex., Lubbock**—SCHOOLS—Lubbock Independent School Dist., Lubbock, voted bonds Sept. 13, Senior High School, **$1,250,000;** No. 1, elementary school, **$350,000;** No. 2 elementary school, **$400,000;** No. 3, elementary school, **$300,000;** grade school, **$300,000;** school addn., work shop, heating sys. **$400,000.**

Tex., Orange—HOUSING—Orange County Housing Auth., Orange, plans by Matkin & Fitch, 4101 San Jacinto St., Houston, 118 non-farm housing units, 20 units, West Orange; 20 units, Bridge City; 34 units, Cove; and 44 units, Vidor. concrete slab fdn., brick veneer constr. **$775,000.** CD 11/14/51.

Tex., San Antonio—AUDITORIUM—City, City Hall, Military Plaza, auditorium imprvs., remodeling, **$705,000.** J. L. Dickson, Dir. P. Wks. Engr.

▲ **Tex., San Antonio**—HOSPITAL—Bd. of Texas State Hospitals and Special Schools, 45 and Lamar Sts., Austin, 400-600 bed-tuberculosis hospital on grounds of San Antonio State Hospital, S. Presa St. **$2,650,000.** CD 1/23/50.

▲ **Tex., Tyler**—HOSPITAL—Bd. for Texas State Hospitals and Special Schools, 45 and Lamar Sts., Austin, reconstruction of existing temporary tuberculosis hospital bldgs. **$4,250,000.** CD 7/28.

▲ **Va., Ashland**—SCHOOLS—Hanover County School Bd. Ashland, plans by J. Henry Walker, Jr., Law Bldg., Richmond, 2 Negro Elementary Schools, near here **$435,000;** high school for 350 pupils, near Battlefield Park, **$350,000;** high school, near here, **$600,000.**

▲ **Va., Luray**—HIGH SCHOOL—Page Co. Bd. Educ., Luray, voted bonds, Alma High School. **$1,300,000.** CD 8/26.

▲ **Va., Yorktown**—HIGH SCHOOLS—York Co. School Bd., Yorktown, plans by Williams, Coile & Blanchard, 3515 Virginia Ave., Newport News, 1 story masonry high school for 300 White pupils, **$550,000;** brick, concrete masonry Consolidated Negro High and Elementary School, **$750,000.** CD 9/22.

Wash., Moses Lake—HOSPITAL—Moses Lake Hospital Dist., Moses Lake, bond election Nov. 4, hospital, **$620,000.** CD 7/15.

▲ **Wash., Renton**—HIGH SCHOOL—School Dist. 403, Renton, bond election November 4, Junior High School. **$1,000.000.** Mallis & DeHart, Lyon Bldg., Seattle, Zone 4, archts. CD 1/5/45.

▲ **Wash., Tacoma**—SCHOOLS—School Dist. 10, Central School, replaces Sherman School **$350,000;** high school in west end, **$2,000,000.**

W. Va., Charleston—LABORATORY—State Health Dpt., Capitol Bldg., plans by C. E. Silling & Assoc., 314 Masonic Temple Bldg., hygienic laboratory. **$512,000.** CD 1/15/45.

▲ **Que., Montreal**—FILM STUDIO, ETC.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., film studios, offices, storage vaults, etc. north of Hodge Ave. west of St. Laurent College for Department, National Film Board, Approx. **$6,000,000.** E. A. Gardner, c/o owner, archt.

Ross, Patterson, Townsend & Fish, Dominion Square Bldg., Montreal, Que., archts. CD 4/9/51.

COMMERCIAL BUILDINGS

D. C., Wash.—APARTMENT—Louis Richman, Inc., 4820 Blagdon Terrace N. W., plans by Edwin Eeihe, 927 15 St. N. W., 57-unit apartment, 3047 16 St. N. W. **$700,000.**

▲ **Fla., Miami**—MEDICAL SCHOOL—Trustees of University of Miami, Coral Gables, medical school. **$1,500,000.**

Ga., Rome—CHURCH—First Baptist Church, Rome, church. **$600,000.**

Ill., Chicago—SCHOOL—Santa Maria Incoronata Parish, 235 W. 25 Place, plans by Edo J. Belli, 8 S. Dearborn St., Zone 3, 2 story, bsmnt., rein.-con. elementary school, **$500,000.**

▲ **Ill., Elmhurst**—SHOPPING CENTER—Cottage Hill Shopping Center, Harold C. Hein (owner), Elmhurst, plans by Edward G. Halstead, 39 S. La Salle St., Chicago, Zone 3, shopping center on 29-acre site at Rte. 3 and St. Charles Rd. **$2,500,000.**

▲ **Ky., Louisville**—APARTMENT—Martin L. Adams & Sons, Joshua Adams, pres., 512 W. Ormsby Ave., 650-700 apartment units, on 45 acres, shopping center on 10 acres, Bardstown Rd. Goldsmith's Lane, **$8,000,000.**

▲ **Ky., Louisville**—ADMINISTRATION—Roman Catholic Diocese of Louisville, c/o Thas. J. Nolan & Sons, archts. Kentucky Life Bldg., 3 story, L-shaped administration bldg. incl. library, offices, student lounge, cafeteria, theater, etc., Bellarmine College. **$1,000,000.** Southern Eng. Co., 419 W. Main St., consult. engr.

▲ **Ky., Louisville** — RESIDENCES — Wakefield-McMakin Co., 112 Fairmeade Rd., 180 residences, **$1,000,000.**

▲ **Mass., Dorchester**—HOME FOR AGED—Hebrew Home for Aged, A. Paul Cohen, pres., 21 Queen St., plans by Korkyn & Browne, 184 Boylston St., Boston, home for aged, addn., 21 Queen St. **$1,000,000.**

▲ **Mich., Birmingham**—Y.M.C.A. BLDG.—Young Men's Christian Assn., Birmingham, brick, steel, concrete Y.M.C.A. bldg., incl. swimming pool, hotel facilities, offices, recreation. **$1,000,000.**

Mo., Overland (St. Louis 14, P.O.)—CHURCH—Overland Baptist Church, Dr. David W. Jones, pastor, Overland, plans by Carl E. Etz, 9507 Milton Ave., Zone 14, brick, concrete, stone church, 9300 block Midland Blvd. **$500,000.**

N. Y., Brooklyn—APARTMENT—Neptune Affiliates, Inc., 17 Neptune Ave., Zone 29, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 78-106 Ocean Parkway. **$600,000.**

N. Y., Brooklyn—APARTMENT—Seagate Manor, Inc., 17 Neptune Ave., Zone 29, plans by Morris Rothstein & Son, 186 Joralemon St., Zone 2, 6 story apartment, 1149-1165 Ocean Ave. **$600,000.**

▲ **N. Y., Jackson Heights**—APARTMENT—Bruson Arms, Inc., c/o M. M. Elkind, archt., 74-09 37 Ave., 6 story apartment, 35 Ave. between 74 and 75 Sts. **$1,200,000.**

▲ **N. Y., New York**—OFFICE—Carlton Importing Corp., 716 Fifth Ave., Zone 19, office addn., Rector and Greenwich Sts. **$1,000,000**

N. Y., New York—APARTMENT—Irvmar Realty Corp., 391 E. 149 St., New York Zone 55, plans by H. Herbert Lilien, 201 W 72 St., Zone 23, 6 story apartment, Mount Hope Pl. between Grand Concourse and Monroe Ave. **$500,000.**

▲**Okla., Tulsa**—National Bank of Tulsa, 320 S. Boston St., 12 story addn. to existing 24-story office. **$1,750,000.** CD 9/16.

▲ **Tex., Austin**—HOSPITAL—St. David's Community Hospital, 606 W. 17 St., plans by Page, Southerland & Page, 602 West Ave., 100-bed hospital. **$1,500,000.** CD 5/20.

Tex., Houston—APARTMENT—Shannon Pfeffer, 3320 Binz St., plans by Willard & Hood, 3940 Main St., 108 unit masonry apartment, nine 2-story bldgs., 5100 Blk. Market St. **$750,000.**

▲ **Wash., Seattle**—DORMITORY—Seattle University, Broadway Ave. and Madison St., plans by J. W. Maloney, Central Bldg., Zone 4, men's dormitory. **$1,200,000.**

Wis., Madison—SHOPPING CENTER—Crawford Heights Corp., 114 State St., plans by Lewis Siberz, 1920 Monroe St., shopping center. **$500,000** or more.

Wyo., Casper—DEPARTMENT STORE—Owner, c/o Walter Kuetzing, archt., Stapleton Bldg., Billings, Mont. department store, **$600,000.**

▲ **Ont., Toronto**—HOSPITAL—Lakeshore Hospital Assn., Dr. E. A. Noble, vice pres., Long Branch, hospital in Toronto Twp., near Port Credit, Toronto suburb. **$3,500,000.**

▲ **Que., Montreal**—SHOPPING CENTER—H. Dubrorsky Enterprises, Inc., 4151 W. Sherbrooke St., Montreal, plans by Greenspoon & Assocs., 4151 W. Sherbrooke St., shopping center, incl. two 4 story concrete, steel, brick buildings, Somerled Ave., **$1,000,000.**

INDUSTRIAL BUILDINGS

Fla., Jacksonville—WAREHOUSE, etc.—International Harvester Co., 180 N. Michigan Ave., Chicago, Zone 1, Ill., district warehouse and sales office, **$400,000.** Otto Krueger, c/o owner, consult. engr.

▲ **Kan., Galena**—PLANT—Eagle-Picher Sales Co., American Bldg., Cincinnati, O., zinc processing and sulphuric acid plant. **$4,000,000.**

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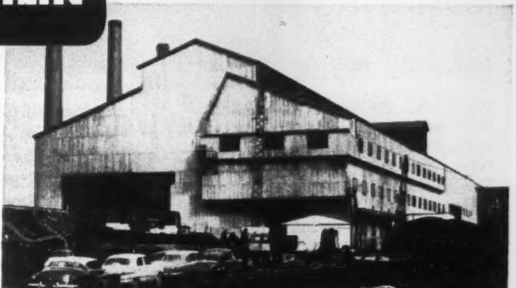

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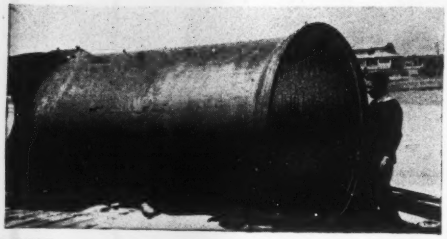

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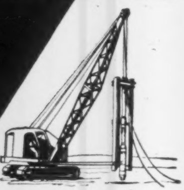

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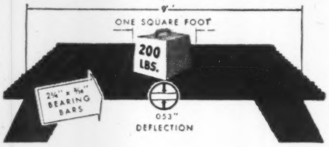

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▲ **Mich., Bell**—PLANT—Kelley Island Lime & Transport Co., Alpena, limestone plant, incl. pier for lake carriers to load fluxtone in Presque Isle County, on Lake Huron Shore, **$8,000,000.**

Mich., Highland Park—WAREHOUSE—Davidson Brothers Inc., 1200 E. Six Mile Rd., plans by Charles N. Agree, Inc., 1140 Book Bldg., Detroit, 100,000 sq. ft. brick, masonry food warehouse addn., incl. office facilities, Six Mile and Oakland Rds. **$600,000.**

▲ **Neb., Omaha**—PLANT—Continental Can Co., Central Div. Office, 135 S. La Salle St., Chicago, Ill., branch plant. **$5,000,000.**

▲ **N. M., Farmington**—PLANT—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., gasoline absorption plant addn. **$1,350,000.**

▲ **N. M., San Juan**—PLANT—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., dehydration plant addn. **$1,000,000.**

▲ **O., Eastlake**—TURBOGENERATOR—Cleveland Electric Illuminating Co., Public Square, Cleveland, addnl. containing one 200,000-kilowatt turbogenerator to $60,000,000 power plant already under const. **$25,000,000.** CD 2/14/51.

▲ **Tenn., Union City**—COOLING HOUSE—Reelfoot Packing Co., cooling house addn. **$1,500,000.** Henschien, Everds & Crombie, 59 E. Van Buren St., Chicago 4, Ill., consult. engrs. CD 9/19/51.

▲ **Tex., Ropesville**—PLANT—Honolula Oil Corp., and Signal Oil & Gas Co., Ropesville, gasoline plant a refrigerated unit to make casinghead gas and petroleum gases, near here. **$1,500,000.** Hudson Engineering Co., 2711 Danville St., Houston, consult. engr. CD 9/22.

▲ **Ont., Port Union**—FACTORY—Canadian General Electric Co. Ltd., 212 King St. W., Toronto, factory, **$1,000,000.** Margison & Babcock, 119 Isabella St., Toronto, consult. engrs.

Ont., Wallaceburg—PLANT—Jessop Steel Co., 225 S. 15 St., Phila., Pa., U.S.A., plant, **$500,000.**

▲ **Que., Montreal**—WAREHOUSE, etc.—Bell Telephone Co. of Canada, 1050 Beaver Hall Hill, Montreal, warehouse and garage between Kings Park Road and Decarie Blvd. **$2,500,000.** T. Pringle & Son Ltd., 485 McGill St., Montreal, Que., engrs.

▲ **Sask., Regina**—REFINERY—Saskatchewan Federated Co-operatives Ltd., Regina, refinery addn. **$5,500,000.** CD 9/27/48.

UNCLASSIFIED

La., Jena—NATURAL GAS SYSTEM—City, City Hall, voted **$467,000** bonds, natural gas sys. exten.,

▲ **Nebraska, Iowa, Minnesota, South Dakota**—PIPE LINE—Northern Natural Gas Co., 22 and Douglas Sts., Omaha, Neb., pipe line **$70,000,000.** M. C. Madsen, c/o owner, ch. engr.

Nebraska—RURAL DISTRIBUTION LINES—Howard-Greeley Rural Public Power Dist., St. Paul, rural distr. lines, Howard and Greeley Counties. **$600,000.** H. S. Nixon Eng. Co., W O W Bldg., Omaha, consult. engr. CD 7/17/46.

▲ **New Mexico**—FIELD GATHERING SYSTEM LINES, etc.—El Paso Natural Gas Co., Bassett Tower, El Paso, Tex., field gathering sys. lines, San Juan area, **$400,000;** Farmington area, **$300,000;** 5,500 h.p. field compressor station units. Farmington area. **$550,000;** 7,500 h.p. compressor station on Main line, San Juan area, **$650,000.** CD 7/24.

New Mexico—PIPE LINE—Malco Pipeline Co., Farmington, crude oil pipe line out of Farmington. **$352,445.**

▲ **O., Canton**—PARK—City, **$1,000,000** bond election Nov. 4, addnl. park and playgrounds.

▲ **O., Cleveland**—UNDERGROUND PARKING GARAGE—Morrison-Knudsen Co. Inc., 411 W. 5 St., and Ford J. Twaits Co., 449 S. Beaudry St., Los Angeles, Calif., 1,000-car underground parking garage on Cleveland's Mall. **$1,000,000.** (To be built by contractors and leased to them for 40 years, ownership then to pass on to city of Cleveland). John C. Wenrick, City Hall, City Comr. of Engineering.

▲ **Pennsylvania and New Jersey**—PIPE LINE—Sinclair Pipe Line Co., 600 Fifth Ave., New York, N. Y., pipe line from Philadelphia refineries to Tremley Pt. sect. of Rahway, N. J. **$9,000,000.**

▲ **Texas and Oklahoma**—GAS TRANSMISSION LINE—Lone Star Gas Co., 1915 Wood St., Dallas, Tex., 70 mi. 20 in. welded joint gas transmission line between Pauls Valley area and Petrolia, Tex., Clay Co. **$3,750,000;** gas gathering lines, Pauls Valley, **$125,000.**

Texas—OIL PIPE LINE—Atlantic Refining Co., 807 Lehman Dr., Houston, addnl. crude oil 8 in. pipe line, from Aransas Pass Seawall to Harbor Island. **$250,000.**

Tex., Lubbock—RURAL DISTRIBUTION LINES—South Texas Plains Electric Corp., Lubbock, addnl. electric transmission and distr. lines. **$225,000.** Cecil M. Hawk & Assoc., 1641 Broadway, consult. engrs.

Wash., Everett—PIER—Port of Everett, Everett, renovate Pier 1, **$325,000;** new pier at Everett Yacht Club site, dredging Tract M and moving Yacht Club to 14 St. **$650,000.**

▲ **W. Va., Beckley**—RAILROAD SPUR, etc.—A. T. Massey Coal Co., Beckley, railroad spur and addn'l. mining facilities. **$3,000,000.**

▲ **Ont., Toronto**—RACE COURSE—Ontario Jockey Club, 2 King St. E., race course on 490-500-acre site, between Toronto and Hamilton, **$5,000,000.**

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 15 Rhode Island

BIDS ASKED—BUILDINGS

Mass., Scituate—SCHOOL—B.A. 10/16—Town, Supt. Schools, high school, Cudworth Rd. $825,000. Plans deposit $50. Perry, Shaw, Hepburn, Kehoe & Dean, 31 St. James Ave., Boston, archts. Bids 8/21 rejected. CD 8/26, under LB.

SOON LETS CONTRACT—BUILDINGS

Mass., Worcester—DORMITORIES—Holy Cross College, College St., soon lets contract 2 dormitories, campus, $500,000. Maginnis & Walsh, 126 Newoury St., Boston, archts. CD 9/17.

BUILDINGS

LOW BIDS AND CONTRACTS

J. F. Rand & Son, 57 Sudbury St., Boston, Mass. CA. **$626,158.** Beethoven SCHOOL, Beethoven Ave., NEWTON, MASS. City, P. Bldg. Comn., 100 Commonwealth Ave., Newton, Mass. CD 9/16, under LB.

Wexler Constr. Co., 2 Elm Pl., Brookline, Mass. LB. **$612,882.** elementary school, Fiske Dist., WELLESLEY, MASS. Town, School Bldg. Comn., D. H. White, chn., Wellesley, Mass. Bids Sept. 25. CD 9/3.

▲ **Thomas O'Connor & Co., Inc.,** 230 Main St., Cambridge, Mass. CA. Est. **$30,000,000.** Unit 6, Edgar Power PLANT addn., North Weymouth, WEYMOUTH, MASS. Boston Edison Co., 39 Boylston St., Boston, Mass. CD 2/7/52.

▲ **George B. H. Macomber Co.,** 19 Milk St., Boston, Mass., CA., **$1,288,000,** ART GALLERY, 1121 Chapel St., NEW HAVEN, CONN. Yale University, Derby Ave., New Haven, Conn. CD 7/19/51.

W. J. Megin, Inc., 51 Elm St., Naugatuck, Conn., CA. meat processing PLANT, WATERBURY, CONN. Armour & Co., Union Stockyards, Chicago, 9, Ill. Fordyce & Hamby, 70 W. 4 St., New York, N. Y., archts. Bids Aug. 15. CD 8/1.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 31 Pennsylvania and New York
STREETS AND ROADS
October 16 New Jersey October 29 Delaware

BIDS ASKED—BUILDINGS

Del., Newport—SCHOOL—B.A. 10/15—Newport School Dist., Newport, Krebs Elementary School, $636,000. George E. Pope & Albert Kruse, Elks Bldg., Wilmington, archts. CD 10/17/51.

N. Y., New York—HOUSING—B.A. 10/21—New York City Housing Auth., 63 Park Row, Zone 38, foundations and general constr.; heating and ventilating; electrical work; plumbing, furnishing and erecting elevators for Forest Houses (Proj. No. NYS-57), Sect. I, incl. Bldgs. 1 to 7 (inclusive) in area bounded generally by E. 166 St., Tinton Ave., E. 165 St., Jackson Ave., E. 163 St. and Trinity Ave., Bronx Boro. Plans deposit $75 general constr. $25 elevators. Extended date. CD 9/11.

▲ **Pa., Phila.**—HOUSING—B.A. 10/30—Phila. Housing Auth., 42 S. 15 St., Wilson Park Housing Development. $9,000,000. W. Pope Barney & Roy W. Banwell, Girard Trust Bldg., archts. CD 3/2/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Horn Constr. Co., Inc., N. Hewlet Ave., Merrick, L. I., N. Y. CA **$1,107,249,** 2 steel girder railroad bridges, elevation of .98 mi. railroad track, new railroad station facilities, c. conc. .24 mi. affected existing streets, Massapequa, Nassau Co. Bids Aug. 7. CD 8/11 under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., CA **$1,572,957,** est. $1,587,135, Johnson City-Rte. 17 connection, FA.SH 50-13 (Johnson City Bridge Proj., Cont. 3), 0.37 mi. FA. SH 52-9, Broome Co. Bids July 24. CD 7/28, under LB.

† **Great Lakes Dredge & Dock Co.,** Morgan Bldg., Buffalo, N. Y. LB **$711,589.** deepen harbor and remove shoals in Lake Erie, south of Buffalo Harbor, involving approx. 131,044 sq. yd. material and 595,000 cu. yd. place measurement of material other than ledge rock, NEW YORK. U. S. Eng., Engineer Park, Buffalo 7, N. Y.

Tufano Contr. Corp., 32-17 Lawrence St., Flushing, N. Y. CA **$507,564,** paving and utilities, Hangar 6, Contr. NYA 280-005, New York International Airport, IDLEWILD, N. Y. Port of New York Auth., 111 8th Ave., New York, N. Y. Bids Aug. 12. CD 8/27, under LB.

▲ **Poirier & McLane,** 33 W. 42 St., New York, N. Y. CA **$2,150,000,** substructures and pipe lines for sewage treatment plant, New Rochelle Sanitary Sewer Dist., Contr. 645, NEW ROCHELLE, N. Y. Westchester County Dpt. P. Wks., County Office Bldg., White Plains, N. Y. Bids Aug. 19. CD 7/28.

▲ **Cayuga Foundation Corp.,** 30 Vesey St., New York 7, N. Y. LB **$1,336,800.** Contr. 415, piers and abutments of Shavertown Bridge in Town of Andes, bridge will cross valley of East Branch of Delaware River at point approx. 1 mi. east of village of Shavertown, NEW YORK, N. Y. Bd. Water Supply, 120 Wall St., New York, N. Y. Bids Sept. 23. CD 8/21.

▲ **PENNSYLVANIA**—State Hy. and Bridge Auth., 506 North Office Bldg., Harrisburg,

Adam Eidemiller, Inc., Greensburg, Pa., CA **$2,512,566.** c. conc. 29,865 ft. divided highway, 24 ft. wide on each side of divisor and four bridges, final sect. of Allentown By-Pass, Rte. U.S. 22, Northampton Co.;

Allegheny Asphalt & Paving Co., Bingham and 8 Sts., Pittsburgh, Pa., CA. **$877,851,** constr. 2,123 ft. retaining walls and ramps and driveways on Penn-Lincoln Parkway between Liberty Bridge and 10th St., T. R. U.S. 22 and 30, Allegheny Co. Bids Sept. 19. awarded Sept. 30. CD 9/23, under LB.

▲ **Lipsett, Inc.,** 100 Park Ave., New York, N. Y. CA **$3,698,500,** Market St. Subway extension, Woodland Ave. 36 to 40 Sts., PHILA. PA. Dpt. Procurement, City Hall Annex, Phila. Pa. CD 8/28 under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

James Julian, 405 S. Dupont St., Elsmere, Del. CA. **$735,826.** grading, drainage, surf. 4.192 mi. National North-South Route via Chesapeake Bay Bridge, Q 168-14-215, Queen Annes Co. CD 9/2, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sano-Rubin Constr. Co.,** 616 Delaware Ave., Albany, N. Y. CA. **$1,717,840,** Colonie Central HIGH SCHOOL, Albany and Fuller Rds., COLONIE, N. Y. Bd. Educ., Colonie Central Schools, 1203 Central Ave., Colonie, N. Y. CD 9/16, under LB.

Lana Development Corp., c/o J. H. Burmeister, archt., 89-30, 161 St., Jamaica, N. Y. Owner Builds. **$516,000.** 43 HOUSES on area bounded by N. Hempstead Turnpike, 175 St., 56 Ave., and Utopia Parkway, FLUSHING, N. Y.

Buhl Constr. Co., 45 W. 45 St., New York 19, N. Y. CA **$635,696,** general contract MUNICIPAL bldg., and accessory GARAGE, GARDEN CITY, N. Y. Supt. P. Wks., 110 7th St., Garden City, N. Y. Bids July 22. CD 8/1, under LB.

John Oechslin, Inc., Commack Rd., Commack, L. I., N. Y. CA **$530,983,** general constr. SCHOOL, ISLIP, N. Y. Bd. Educ., Consolidated Union Free School Dist. 2, Islip, N. Y. Bids Aug. 28. CD 8/20.

▲ **Rockwood Park Homes,** c/o Alwyn Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$3,000,000.** 250 HOUSES on tract at Cross Bay Blvd., Belt Parkway and 159 Ave., ROCKWOOD PARK, N. Y.

▲ **Scarsdale Homes,** c/o Burnett V. Vickers, archt., 14 Mamaroneck Ave., White Plains, N. Y. Owner Builds. **$1,750,000.** 50 HOUSES, Old Mamaroneck Rd., SCARSDALE, N. Y.

Richly Homes, c/o Stanley Klein, archt., 89-31, 161 St., Jamaica, N. Y. Owner Builds. **$750,000.** 65 HOUSES on tract at 128 St. and S. Conduit Ave., WAKEFIELD, N. Y.

▲ **Capri Village Homes,** c/o Karl Block, archt., 7 Lansdown Ave., Merrick, N. Y. Owner Builds, **$2,000,000.** 200 HOUSES on 73 acre tract on Merrick Rd., WEST ISLIP, N. Y. Karl Block, 7 Lansdown Ave., Merrick, N. Y., archt.

▲ **Berne Constr. Co.,** 110 Mamaroneck Ave., White Plains, N. Y. Owner Builds. **$2,600,000.** 261 HOUSES on 53-acre tract, Mountainside Rd., YONKERS, N. Y.

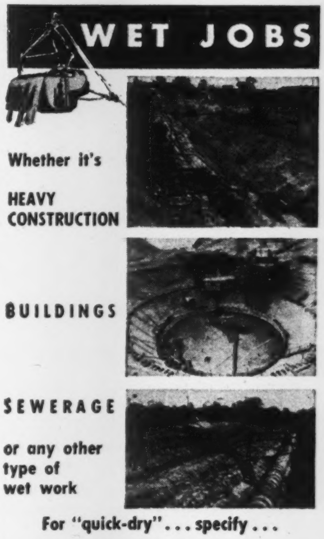
Riverdale Estates Homes, c/o Lester Cohen, archt., 41 Main St., Hackensack, N. J. Owner Builds, **$750,000** 65 HOUSES on 35-acre tract on Riverdale Rd., RIVERDALE, N. J.

▲† **William F. Hindley Co.,** 1735 N. Olden Ave., Trenton, N. J., CA, **$1,247,890** Naval Aeronautical TURBINE TEST STATION alterations, addns., NOY 22370, Spec. 25997, TRENTON, N. J. Dpt. Navy, P. Wks. Office, Phila. Naval Base, Phila., Pa. CD 9/20/51.

† **Buck & Donohue, Inc.,** 790 Broad St., Newark, N. J. CA. **$548,250.** WAREHOUSE and STEAM PLANT, Indiantown Gap Military Reservation, Eng. 18-020-53-7, ANNVILLE, PA. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. CD 9/18, under LB.

▲ **Branna Constr. Co.,** 406 Bessemer Bldg., Pittsburgh, Pa., LB Approx. **$1,002,921,** 4 story bsmnt., 45x220 ft. brick, steel HOSPITAL addn., alterations, CHARLEROI, PA. Charleroi-Monessen Hospital, Charleroi, Pa. Bids Sept. 13. CD 9/5.

▲ **Montgomery Constr. Co.,** 803 W. Main St., Grove City, Pa. LB. **$1,190,000** general constr. Senior HIGH and Elementary SCHOOL bldgs. for Grove City Joint School Dist., GROVE CITY, PA. State Public School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Sept. 25. CD 8/26.



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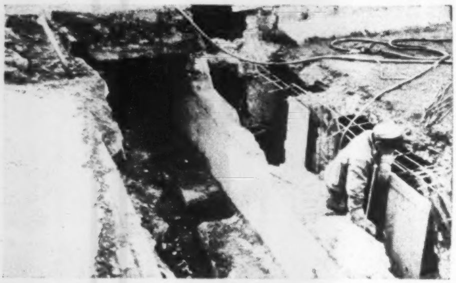

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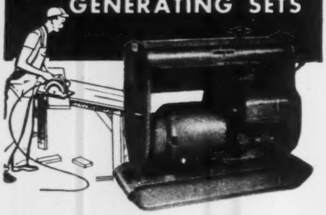

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▲ **S. H. Evert Co. Inc.**, Bloomsburg, Pa.. LB. **$1,032,000**, general constr. alterations and expansion at Edison Junior HIGH SCHOOL, 19 and Chestnut Sts., HARRISBURG, PA. Harrisburg School Bd., 121 Chestnut St., Harrisburg, Pa. Bids Sept. 26. CD 9/10.

Brookhaven Corp., 160 Long Lane, Upper Darby, Pa. Separate Contracts. **$800,000.** RESIDENTIAL DEVELOPMENT, Dulton-Colonial Park Dr., SPRINGFIELD, PA.

John K. Ruff, 100 W. 22 St., Baltimore, Md. CA. **$920,900.** 4 story, rein.-con., cinder block SCIENCE BLDG., Morgan College, BALTIMORE, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 1, Md. CD 9/10, under LB.

Chas. R. Scrivener Co., Inc., 2405 Hilton St., Baltimore, Md. LB. **$896,700**, est. $750,000. 1 story, masonry Havre de Grace High SCHOOL, near Havre de Grace, BEL AIR, MD. Harford Co., Bd. Educ., Bel Air, Md. Bids Sept. 24. CD 9/4.

▲ **Montauk Corp.**, 10017 Montauk Ave., Bethesda, Md. Owner Builds. **$3,250,000.** 250 HOUSES, Georgetown Village, BETHESDA, MD. Shunsky, 7338 Baltimore Ave., College Park, Md., archt.

† **Baltimore Contractors, Inc.**, 711 S. Central Ave., Baltimore, Md. LB. **$692,775.** 2 story, bsmnt., 56x300 ft., concrete block BUILDING 330 addn., alterations, Army Chemical Center, Eng. 18-020-53-8, EDGEWOOD, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 3, Md. Bids Sept. 23. CD 9/12.

† **John K. Ruff, Inc.**, 100 W. 22 St., Baltimore, Md. CA. **$967,900.** Signal Corps ENGINEERING LABORATORY FIELD STATION, WAREHOUSE, EQUIPMENT BLDG., generator, roads, parking areas, outside utilities, Eng. 18-020-53-10, FORT GEORGE C. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. Bids Sept. 18. CD 9/9.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 17 Kentucky
STREETS AND ROADS
October 15 Louisiana
October 16 Virginia
October 17 Kentucky

BIDS ASKED—BUILDINGS

N. C., Wilmington—HIGH SCHOOL—B.A. 10/22—New Hanover Co. Bd. Educ., Court House, Williston Senior High School. $750,000. Plans deposit $50. Extended date. Leslie N. Boney, 120 S. 5 St., archt. CD 9/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Diamond Constr. Co.**, P. O. Box 1007, Norfolk, Va. LB **$1,064,049**, small boat basin, Naval Amphibious Base, NOY 72490, Spec. 33662, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norflok, Va. Bids Sept. 30. CD 9/11.

▲ **GEORGIA**—State Hy. Dpt., Capitol Square, Atlanta,

E. A. Hudson's Sons, Bolton, Ga., CA, **$137,521** grading, paving, 1 bridge 5.28 mi. Barnesville-Jackson Road, S.R. 36, F.A.S.P. S 0762 (7), Lamar Co.; CA, **$292,001**, grading, paving 4.982 mi. Macon-Jackson Rd. SR 87, F.A.P. F-037-1 (2) CT 1, Monroe Co.; CA, **$81,935**, grading, paving 3.503 mi. Americus-Vienna Rd., SR 27, F.A.P. F-081-1 (3), Dooly Co.;

T. D. Lamb, Jr., Vidalia, Ga., CA, **$152,122** grading, paving 7.756 mi. Lumpkin-Benevolence Rd., F.A.S.P. S-0510 (3) CT 1 and S-1520 (1), CT 1, Stewart Co.;

M. J. Carroll Constr. Co., Leesburg, Fla., CA, **$95,060** grading, paving, 2 bridges, 5.615 mi. Rochelle-Fitzgerald Rd., S.R. 215, F.A.S.P. S 0539 (4), Wilcox Co.;

Marion Constr. Co., Ocala, Fla., CA, **$97,952**, grading, paving 7.674 mi. Richmond Hill-Keller Rd., S.R. 63, F.A.S.P. S-0630 (1), Bryan Co.;

E. M. Beckham Constr. Co., Perry, Ga., CA, **$689,343**, grading, paving 11.21 mi. access road to Robins Air Force Base, access Defense Proj. AD-1 (1), CT 1, Houston and Bibb Counties;

Wright Contg. Co., 504 25 Ave., Columbus, Ga., CA **$219,187**, grading, paving 7.012 mi. Marine Depot Rd., SR 257 to SR 50, access Defense Proj. AD-2, Dougherty Co.;

Weese & Weeks Constr. Co., McCaysville, Ga., CA **$369,239**, grading 2.591 mi. Augusta to Waynesboro Rd.; F.A.P. U-015-1 (1), Richmond Co.;

E. F. Groover, Moultrie, Ga., CA **$121,373**, grading, paving 7.11 mi. Norman Park-Sylvester Rd., S.R. 256, F.A.S.P. S-1615 (1), Colquitt and Worth Counties;

MacDougald-Warren, Inc., 1650 Northside Dr. N.W., Atlanta, Ga., CA, **$207,979**, resurf. 6.208 mi. Roswell to Atlanta Rd., S.R. 9, SAP-RECON. -1681-A (12), Fulton Co.;

Southern Roadbuilders, Inc., 13 St., Augusta, Ga., CA, **$60,768**, grading, paving, scale house, cale pit State Farmers Market, SAP 1284 (1), Richmond Co. Grand total $2,523,480. Bids Sept. 19. CD 9/12.

BUILDINGS

LOW BIDS AND CONTRACTS

Eugene Simpson & Bros., 3000 Montgomery St., Alexandria Va., LB **$975,625.** HOTEL (Virginia Hotel) ALEXANDRIA, VA. Thomas H. Meletis, 734 N. St. Asaph St., Alexandria, Va. Bids Sept. 25. CD 9/23.

Associated Developers, Inc., 3333 Palm Ave, Hialeah, Fla., Owner Builds, **$750,000**, 65 RESIDENCES, HIALEAH, FLA.

▲ † **Alabama, Kentucky and Tennessee**—Tennessee Valley Auth., Sprackles Bldg., Knoxville, Tenn., awarded contracts for Kingston Steam Plant, Tenn.; Shawnee Steam Plant, Ky., Johnsonville Steam Plant, Ky., Widows Creek Steam Plant, Ala., Colbert Steam Plant, Ala. Total **$14,446,768.**

KINGSTON STEAM PLANT, TENN.

General Electric Co., 1405 Locust St., Phila., Pa., **$357,000**, oil circuit breakers;

Tri-State Roofing Co., 2411 N. Central Ave., Knoxville, Tenn., **$114,107**, roofing, flashing, insulation, etc.;

Westinghouse Electric Corp., Sharon, Pa., **$73,416**, transformers;

Phelps Dodge Copper Products Corp., 40 Wall St., New York, N. Y., **$123,712**, cable;

Chain Belt Co., 4701 W. Greenfield Ave., Milwaukee, Wis. **$77,325**, water screens;

Rust Engineering Co., 575 6th Ave., Pittsburgh, Pa., **$332,500**, rein.-con. chimneys, incl. designing;

B. F. Goodrich Co., 500 S. Main St., Akron, O., **$78,078**, conveyor and bunker sealing belts;

Chapman Valve Manufacturing Co., Essex St., Indian Orchard, Mass., **$26,460**, sluice gates;

SHAWNEE STEAM PLANT, KY.

Delta Star Electric Co., 2437 W. Fulton St., Chicago, Ill. **$173,208**, switches;

Babcock & Wilcox Co., Barberton, O., **$6,634,744**, steam generating units;

Benjamin F. Shaw Co., 2 and Lombard Sts., Wilmington, Del., **$4,500,000**, piping system.

United Conveyor Corp., 37 W. Van Buren St., Chicago 5, Ill., **$91,021**, ash handling systems;

Lummus Co. 385 Madison Ave., New York, N. Y. **$32,698**, evaporators and preheaters;

Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill., **$200,554**, water screens;

Northeastern Engineering, Inc., Manchester, N. H. **$86,735**, power switchboards;

Sliger & Gore, Paducah, Ky., **$61,360**, gravel;

Federal Materials Co., 234 N. 2nd St., Paducah, Ky., **$198,997**, sand fine aggregate;

H. H. Robertson Co., Farmers Bank Bldg., Pittsburgh, Pa., **$99,700**, asbestos protected siding and roofing;

Richardson Scale Co., 668 Van Houten Ave., Athenia, N. J. **$82,750**, boiler room coal scales;

Cochrane Corp., 3130 N. 17 St., Phila., Pa., **$219,780**, feedwater heaters;

American Bridge Div., U. S. Steel Corp., 525 Wm. Penn Pl., Pittsburgh, Pa., **$267,600**, structural steel.

JOHNSONVILLE STEAM PLANT, KY.

Mills & Lupton Supply Co., 1152 Market St., Chattanooga, Tenn. **$6,362**, floodlight projectors;

WIDOWS CREEK STEAM PLANT, ALA.

Phelps Dodge Copper Products Corp., 40 Wall St., New York, N. Y. **$134,530**, cable.

Rockbestos Products Corp., Koppers Bldg., Pittsburgh, Pa., **$65,527**, cable;

West Virginia Brick Co., 442 Virginia Ave. E., Charleston, W. Va., **$10,097**, brick and tile;

COLBERT STEAM PLANT, ALA.

M. W. Kellogg Co., 225 Broadway, New York, N. Y. **$344,000**, rein.-con. chimneys, including design;

Charles E. Schuler Engineering Co., Newark, O., **$54,507**, furnishing floodlight towers for Widows Creek Steam Plant, Ala., Johnsonville Steam Plant, Ky., Kingston Steam Plant, Tenn. and Shawnee Steam Plant, Ky.

† **T. H. Pearce & Co., P. O. Box 1293, Columbus, Ga.**, LB, **$773,476**, missile assembly SHOP, Redstone Arsenal Inv. 53-9, HUNTSVILE, ALA. U. S. Eng., P. O. Box 1169, Mobile, 7, Ala. Bids Aug. 27. (correction status). CD 9/30, under CA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

October 21 Indiana

STREETS AND ROADS

October 14 Wisconsin **October 15 Michigan**

† Illinois—B.A. 10/14—U. S. Eng., Clock Tower Bldg., Rock Island, bit. surf. tr. and repairing access road, Lock and Dam 13, Mississippi River, CIVENG 11-117-53-24, Whiteside Co.

BIDS ASKED—BUILDINGS

O., Cleveland—SCHOOL—B.A. 10/14—Bd. Educ., 1380 E. 6 St., Zone 14, George Washington Carver Elementary School, 2201 E. 49 St. $600,000. Plans deposit $10. Arthur F. Baer, c/o owner, archt. CD 7/31.

▲ **Mich., Muskegon**—HOSPITAL—B.A. 10/15—Mercy Hospital Sisters of Mercy, 1521 Jefferson St., Muskegon, brick, steel hospital addn., $1,500,000. Plans deposit $50, refundable. Extended date. Jensen & Keough, 15875 James Couzens Hy., Detroit, archts. CD 9/4.

▲ **Mich., Romulus** — PLANT—B.A. 10/15—Lincoln-Mercury Div. Ford Motor Co., 6200 W. Warren St., Detroit, preparation plant, incl. test cells, fuel handling sys., engine preparation unit for Navy Dpt. $1,000,000, Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, engr. and archt. CD 2/11/52.

▲ **Mich., Detroit** — HOUSING—B.A. 11/5—Detroit Housing Comn., Harry J. Durbin, secy., 409 Griswold St., six 14 story brick, steel buildings, 872 family units, Brewster, Hastings, Winder and St. Antoine Sts., Proj. Mich. 1-8, $4,000,000-$5,000,000. Extended date, Harley, Ellington & Day, Inc., 153 E. Elizabeth St., Detroit, archt. CD 9/11.

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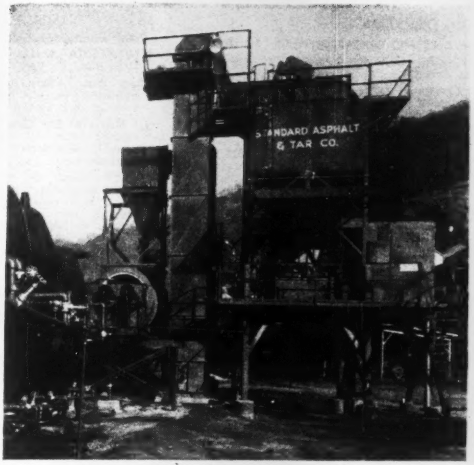

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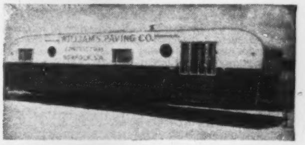

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HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MICHIGAN**—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13,

Louis Garavaglia, 24240 Mound Rd., Center Line, Mich. and **Denton Constr. Co.**, 7-170 General Motors Bldg., Detroit, Mich. LB **$730,494**. est. $700,000. grading, drainage 4.144 mi. parts of 16 Mile Rd. and M-53, AD 50-57 C1 (AD 2), Macomb Co.;

Alpine Constr. Co., St. Ignace, Mich. LB **$211,116**. est. $190,000. stabilized aggregate surf. 9.995 mi. M-28, F 75-7 (F191 14) Part I, F 75-8 C3 (F 191 14) Part 2, Schoolcraft Co.;

Julius Porath & Sons Co., 702 Transportation Bldg., Detroit, Mich. LB **$140,574**, est $120,000. c. conc. 1.778 mi. Mound Rd. and 23 Mile Rd. to M-53, AD 50-58 C1 (AD 3), Macomb Co. Bids Sept. 24. CD 9/19.

R-W Constr. Co., 3218 W. Fond du Lac Ave., Milwaukee, 10, Wis., CA **$154,871**, water mains in W. Kilbourn Ave., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Sept. 22. CD 9/17.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **United Engineers & Constructors, Inc.**, Box 628 Phila. 5, Pa., CA Approx. **$2,000,000**. 1 story, brick, concrete, steel FACTORY to produce electric furnaces, near Beverly, JACKSON, O. Globe Iron Co., Jackson, O. CD 3/12.

The Austin Co., 520 N. Dearborn St., Chicago, 10, Ill. CA, **$500,000**, 50,000 sq. ft. detinning works PLANT, GARY, IND. Vulcan Detinning Co., Sewaren, N. J. Awarded Sept. 26. CD 6/20.

▲ **M and D Builders Corp.**, 18 and Coolidge Sts., Indianapolis, Ind. Owner Builds. **$1,080,000**, 80 HOMES, Shadeland Manor, north of INDIANAPOLIS, IND.

▲ **Del-O Realty Co.**, Ohio and Delaware Sts., Indianapolis, Ind. Owner Builds. **$1,400,000**, 100 HOMES, Speedway City, INDIANAPOLIS, IND.

Abell Howe Co., 53 W. Jackson St., Chicago, 4, Ill., CA, **$450,000**, FACTORY addn., CHICAGO, Ill. Illinois Gear & Machine Co., 2108 N. Natchez, Chicago, Ill. Awarded Sept. 26.

▲ **Poirot Constr. Co.**, 2001 Pershing Rd., Chicago 9, Ill., CA, **$1,000,000**. 2 story, bsmt, brick, stone SYNAGOGUE, CHICAGO, ILL. Temple Emanuel, Sheridan and Thorndale Sts., Chicago, Ill. Bids June 10, awarded Sept. 23. CD 6/3.

▲ **Major Constr. Co.**, 2987 W. 5 Ave., Gary, Ind., CA. **$1,200,000**, 100 RESIDENCES, LOCKPORT, ILL. Raynor Hills Estates, Inc., Joliet, Ill., Levon Seron, 81 N. Chicago St., Joliet, Ill., archt.

Power Constr. Co., 212 Marion St. Oak Park, Ill. LB, **$995,000** 2 story, bsmnt., Neal Junior High SCHOOL, NORTH CHICAGO, ILL. School Dist. 64, 1110 18 St., North Chicago, Ill. Bids Sept. 26. CD 9/2.

▲ **Miller Homes, Inc.**, 16709 E. 8 Mile Rd., Detroit, Mich. Onwer Builds. Est. **$3,000,000**. Brick ranch HOMES, Buckingham, Birwood, Kirkshire, Sprenger and Kelly Rds., 7 and 8 Mile Rds. section, DETROIT, MICH.

▲† **Darin & Armstrong, Inc.**, 2041 Fenkel St., Detroit, Mich. CA **$1,668,690**. foundation and site preparation for jet PLANT for Dpt. Navy, ROMULUS, MICH. Ford Motor Co., 300 Schaefer St., Dearborn, Mich. Bids Aug. 5. CD 7/17 under Industrial Buildings.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 21 Texas
STREETS AND ROADS
October 15, Nebraska — October 17, Kansas
October 17, Minnesota — October 21, Texas

† **Tex., Fort Worth**—HANGAR—B.A. 10/29—U. S. Eng., 100 W. Vickery St., 185,237 sq. ft. maintenance hangar containing shops, (Cantilever), Carswell Air Force Base. $875,000. CD 6/18.

† **Tex., Fort Worth**—RUNWAY PAVING, etc.—B.A. 11/5—U. S. Eng., 100 W. Vickery St., 110,000 sq. yd. concrete paving, drainage and grading of runway extens., $600,000; 76,985 sq. yd. concrete paving, grading, drainage taxiway, $275,000; 30,000 sq. yds. concrete, paving drainage and drainage of lapron warm-up, $120,000, Carswell Air Force Base, CD 6/18.

BIDS ASKED—BUILDINGS

▲ **Kan., Independence**—SCHOOL—B.A. 10/20—Bd. Educ., c/o W. T. Newkuk, pres., 1203 N. Penn St., Junior College and High School, $1,250,000, Thos. W. Williamson & Victor Loebsack & Assoc., 1243 Topeka Blvd., Topeka, archts. Stuard Hazard, Capital Federal Bldg., Topeka, struct. engrs. CD 2/5/52.

Minn., Litchfield—SCHOOL—B.A. 10/25—Bd. Educ., Independent School Dist. 9, A. Klein, clk., 1 story, school, $700,000. Plans deposit $25. E. D. Corwin, 818 E. First National Bank Bldg., St. Paul, archt. CD 5/12.

Tex., Houston—APARTMENT—Bids Asked—Wheatley Plaza Apartments, 3320 Binz St., nine 2-story apartments. $750,000. Willard & Hood, 3940 Main St., archts. CD 9/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **MINNESOTA**—Bureau P. Rds., Dpt. Commerce, 214 Globe Bldg., St. Paul,

Ulland Bros., Austin, Minn. LB **$549,990**. Superior National Forest, Minnesota Forest Hy. Proj. No. 5-LM, Cook Co. Bids Sept. 19. CD 8/22.

▲† **Martin K. Eby Constr. Co., Inc.**, 610 N. Main St., Wichita, Kan. LB **$2,110,527**, est. $2,509,699. fifteen 2 story dormitories, 3 mess and admin. bldgs., wood constr.

G. W. L. Constr. Co., 1421 E. Washington St., North Little Rock, Ark. LB **$2,648,900**. est. $2,636,947. ten 3 story dormitories, 3 mess and admin. bldgs., masonry constr., Sedalia Air Force Base, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Sept. 30. CD 9/15 under LB.

▲ **SOUTH DAKOTA**—State Hy. Comn., Pierre,
Guy H. James Constr. Co., 1st Natl. Bldg., Oklahoma City, Okla., and **Foster-Smetana Co.**, 4360 Nicholas St., Omaha, Neb., CA **$1,285,832**, 2,004 ft. bridge superstructure over Missouri River, WAR 165-1, Brule Co. Bids Sept. 9. CD 9/16, under LB.

▲ **SOUTH DAKOTA**—State Hy. Comm., Pierre,
G. H. Lindekugel & Son, Mitchell, S. D., CA **$936,752**, fillslope protection, WAR 165 Lyman and Brule Counties; CD 9/18 under LB.

Harris Constr. Co., Faulkton, S. D., CA **$655,395**, grading, etc. 4.143 mi. WAR 165, Lyman and Brule Counties, (**Correction**-cost.); CD 9/18, under CA.

† **Fuel Economy Engr.** Co., 510 New York Bldg., St. Paul, Minn. CA. **$1,516,942**, army support facilities, Rapid City Air Force Base, Inv. 25-066-53-132, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Sept. 9. CD 9/11, under LB.

TEXAS—State Hy. Comn., Austin,
Public Constr. Co., P.O. Box 380, Denton, Tex., CA **$570,788**. wid'n. and hot mix. b. conc. resurf. 17.418 mi. Hy. U. S. 81, Proj. C 15-1, 2, 3 and 4-17 and 5, 7 and 10, McLennan, Falls and Bells Counties. Bids Aug. 19. CD 8/26, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Austin Contg. Co., P.O. Box 1590, Dallas, Tex., CA **$569,200**, soil cement base and b. conc. pavement 36.931 mi. Hy. U.S. 83, 283, 82 and 277, Proj. C 156-5 and 6-15 and 14, Archer and Baylor Counties;

Hugh McMillan, P.O. Box 1227, El Paso, Tex., CA **$528,166**, wid'n. pavement, resurf., concrete shoulder and b. conc. 31.055 mi. Hy. U. S. 80, Proj. C 2-11-14, C 3-1-15, C 3-2-13, Culberson Co.;

Ernest Loyd, P.O. Box 1120, Fort Worth 1, Tex., CA **$728,451**. flexible base, hot mix b. conc. 9.652 mi. Hy. U. S. 80, Proj. F 19 (11) and FI 19 (12), Eastland Co. Grand total $1,825,817. Bids Sept. 16. CD 9/23 under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Brown & Root, Inc., P.O. Box 3, Houston, Tex., CA **$874,843**, stabil. base, b. conc. pavement, etc. 1.682 mi. Hy. Loop 137, Proj. U 1057 (6), Harris Co.;

Tecon Paving Co., 1201 Main St., Dallas, Tex., CA **$530,266**, hot mix. b. conc. 17.6 mi. Hy. U.S. 277, Proj. C 157-3-9, Haskell Co.;

Trotti & Thomson, P.O. Box 70, Beaumont, Tex., CA **$762,592**, flexible base and b. conc. 6.492 mi. Hy. SH 73 and 87, Spur 214 and FM 823, Proj. F 1052 (8), Jefferson Co.;

Uvalde Constr. Co., P.O. Box 3027, Dallas, Tex., CA **$635,579**, hot mix b. conc. 65.244 mi. Hy. U. S. 81 and 82, C 13-3 and 4-10 and 5, C 44-3 and 2-11 and 11, C 44-7 and 8-10 and 15, Montague, Clay and Cooke Counties. Grand total $2,803,280. Bids Aug. 20. CD 8/27, under LB.

▲ **NEW MEXICO**—State Hy. Dpt., Capitol Bldg., Santa Fe,

Brown Contr. Co., 3525 N. 4 St., Albuquerque, N. M. CA **$568,169**, grading, minor drainage structures, three multiple concrete box culverts each over 20 ft. clear span, watering and rolling, ballast, misc. const. 9.489 mi. U. S. Hy. Rte. No. 70-80 between Lordsburg and Deming, FAP No. FI-87 (4). Hidalgo Co.; CA **$291,463**, grading, minor drainage structures, one 25 ft. span concrete slab bridge, two multiple concrete slab bridges, two multiple concrete box culverts, each over 20 ft. clear span, watering and rolling, ballast, leveling course, bit. top course surf., asph. and stone chips sealing, misc. const. 6.966 mi. U. S. Hy. Rte. No. 64-87 between Des Moines and Clayton, CAP No. F-157 (12), Union Co.;

D. D. Skousen, Springer Bldg., Albuquerque, N. M. CA **$114,366**, grading, minor drainage structures, watering and rolling, ballast, leveling course, misc. constr. 5.979 mi. N. M. Hy. Rte. No. 1 from San Antonio northerly. FAP No. S-246 (1), Socorro Co.;

Armstrong & Armstrong, Roswell, N. M., CA **$106,391**, leveling course, bit. top course surf. and misc. constr. 4.398 mi. N. M. Hy. Rte. 396 between U. S. Hy. Rte. 62-180 and Black River Village, FAP No. S-261 (1), Eddy Co. Grand total $1,080,389. Bids Sept. 26. CD 9/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Jones Bros. Constr. Co.**, 1109 Byers St., Joplin, Mo. CA Est. **$2,000,000**. hydraulic equip. mfg. PLANT addns., JOPLIN, MO. Vickers, Inc., 10 and Schifferdecker St., Joplin, Mo. C. Bates Manning, Spiva Bldg., Joplin, Mo., archt. Awarded Sept. 29.

Risch Building & R. E. Co., 9100 Gravois Ave., St. Louis 23, Mo. CA Est. **$720,000**. forty-five 24x34 ft., brick, concrete RESIDENCES, Blow, Parkwood, Morganford, Radom and Quincy Aves., ST. LOUIS, MO. Norman J. Risch, et al., 9100 Gravois Ave., St. Louis 23, Mo.

▲ **Likins-Foster Co.**, (Sponsor) 1413 S. Blackwelder St., Oklahoma City, Okla. CA. Est. **$1,700,000**. construct, manage and finance unit military HOUSING, OLATHE, KAN. Dist. P. Wks. Office, Ninth Naval Dist., Bldg. No. 1-A, Great Lakes, Ill. Leo A. Daly Co., Inc., 633 Insurance Bldg., Omaha, Neb., archt. CD 5/27, under LB.

▲ **Rust Engineering Co.**, 575 Sixth Ave., Pittsburgh, Pa., CA **$3,000,000**. design and construct chemical PLANT, on Ship Channel, HOUSTON, TEX. Phillips Chemical Co., Commerce Bldg., Houston, Tex. CD 9/17.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 22, California

BIDS ASKED—BUILDINGS

▲ **Calif., San Diego**—SCHOOL—B.A. 10/21—San Diego Unified School Dist., 825 Union Ave., 1 story, 113,900 sq. ft. Pacific Beach High School buildings, $1,000,000. Plans deposit $15. Clyde Hufbauer, 19751 5 Ave., archt. CD 8/22.

▲ **Wash., Seattle**—HOSPITAL—B.A. 10/27—King Co., County-City Bldg., Zone 4, Harborview County Hospital addn., $2,000,000. T. Damm, 516 James St., and H Bittman, Securities Bldg., archts. CD 7/10/51.

▲ **Calif., San Diego**—JUVENILE HALL—B.A. 10/28—San Diego Co., Civic Center, San Diego, 1 story, 47,000 sq. ft., concrete juvenile hall $1,000,000. Plans deposit $25. George Lykos, Spreckels Bldg., archt. CD 3/19/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEVADA**—Dpt. Hys., State Office Bldg., Carson City,
Carl E. Nelson Co., Logan, Utah, CA **$574,185**, const. portion State Hy. Sys., from Las Vegas to Camp Desert Rock, Rte. Sect. 006-2, Control Sections CL-17, CL-18, CL-19 and NY-07, Proj. No. AA-AF-10. State Hy. Cont. 849, Clark Co.;

Isbell Constr. Co., S. Virginia Rd., Reno, Nev., CA **$437,522**, const. portion State Hy. Sys., from East Slope of Mormon Mesa to 1¼ mi. northwesterly of Riverside, Rte, Sects. 005-2 and FAS 541, Control Sections CL-49 and CL-08, Proj. No. FLH-22 (1), S-541 (1), State Hy. Contr. No. 850, Clark Co. Bids Sept. 25. CD 9/17.

Dahlgren Constr. Co., 1700 21 Ave. S., Seattle, Wash., CA, **$762,846**, seven 1 and 2 story, masonry Veterans' HOME buildings to provide 228 housing units, RETSIL, WASH. State Dpt. P. Instruction, Olympia, Wash. Bids Sept. 23. CD 9/29, under LB.

▲ **Dahlgren Constr. Co.**, 1700 21 Ave. S., Seattle, Wash., LB, **$1,128,380**, 4 story, 300x100 ft. rein.-con. city light ADMINISTRATION BLDG., TACOMA, WASH. City, City Hall, Tacoma, Wash. Bids Sept. 29. CD 9/16.

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland,
E. C. Hall Co.-Fred H. Slate Co., 12012 S. W. Barbur St., Portland, Ore., CA. **$774,821**, 8.36 mi. reconstruction Oregon Coast Hy., 324 ft. precast concrete bridge, Coos and Douglas Counties. Bids Sept. 25. CD 9/10.

▲ **OREGON**—State Hy. Comn., Highway Bldg., Salem,
Roy L. Houck & Son, Salem, Ore., CA **$320,721**, grading, paving 2.11 mi., West Portland-Hubbard Hy. FAP F-FI 303 (7), Clackamas Co.;

Carl M. Halvorson, Builders Exchange Bldg., Portland, Ore., CA. **$693,993**; 0.49 mi. highway roadbed, concrete steel bridge over Coquille River, Seven Devils Hy. FAP S-113 (1), Coos Co. Bids Sept. 23.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles
Geo. W. Peterson & Jack Baker, 4140 Motor Ave., Culver City, Calif., LB, **$508,613**, bridge, grading approach over S.P. Railroad Tracks, Fifth St. and Rt. 153, Camarillo, Ventura Co. Bids Sept. 25. CD 9/4.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
Ball & Simpson, Erickson, Phillips & Weisberg, 685 Delaware St., Berkeley, Calif., LB, **$1,196,231** undercrossing retaining walls, grading portion of freeway, grading, surf. ramps and streets between Fallon and Market Sts. Alameda Co. Bids Sept. 24. CD 9/4.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
McCammon-Wunderlich Co. & C. K. Moseman, P. O. Box 1023, Palo Alto, Calif., CA, **$1,447,396**, grading, place base material, rein.-con. bridges 7.5 mi. between 2 mi. E. of Redmond Overhead and Corral Hollow Rd., Alameda and San Joaquin Counties. Bids Sept. 17, awarded Sept. 25. CD 9/24, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
J. E. Haddock, 3538 E. Foothill Blvd., Pasadena, Calif., CA, **$1,919,792**, c. conc. paving on cement treat. subgrade and 19 retaining walls, etc. Harbor Freeway between Olympic Blvd. and 2 St., Los Angeles Co. Bids Sept. 11, awarded Sept. 25. CD 9/17, under LB.

P & J Artukovitch, Inc. & M. Miller Co., 877 N. Bunker Hill St., Los Angeles, Calif., CA **$527,571**, est. $639,429 installing sanitary sewers in Garvey Ave. and other streets, POMONA, CALIF. City, 250 W.

4 St., Pomona, Calif. Bids Sept. 16, awarded Sept. 19. CD 9/23, under LB

BUILDINGS

LOW BIDS AND CONTRACTS

Larsen & Co., 365 W. 4 St., Salt Lake, City, Utah, CA, **$583,051** 13 buildings, utilities, Inv. 53-5, CAMP HANFORD, WASH. U.S. Eng., City-County Airport, Walla Walla, Wash. Bids Sept. 10. CD 9/16, under LB.

E. E. Settergren, 3723 S.E. 21 St., Portland, Ore., CA, **$676,294,** 21-room Jason Lee SCHOOL, PORTLAND, ORE. School Dist. 1, 631 N.E. Clackamas St., Portland, Ore. Bids Sept. 24. CD 9/10.

A. F. Stewart, 1130 Kieth Ave., Berkeley, Calif., LB, **$611,000,** Market Street SCHOOL addns., DALY CITY, CALIF. Jefferson School Dist, 344 Santa Barbara Ave., Daly City, Calif. Bids Sept. 19. CD 9/11.

▲ **Williams & Burrows, Inc. and Carl N. Swenson,** 10 California St., Burlingame, Calif., CA, **$1,987,000** general contract, 6 WARD BLDGS. and COMISSARY BLDGS. at Sonoma State Home, ELDRIDGE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Sept. 11, awarded Sept. 25. CD 9/17, under LB.

▲ **Beyer & Abrahamson,** 315 W. 9 St., Los Angeles, Calif., LB, **$1,181,700,** 3 story, rein.-masonry COMMUNITY CENTER, Olympic Blvd., LOS ANGELES, CALIF. Jewish Center Assoc., 590 N. Vermont St., Los Angeles, Calif. Bids Sept. 17. CD 8/21.

▲ **Ford J. Twaits Co.,** 449 S. Beaudry St., Los Angeles, Calif., LB, **$1,723,835,** est. $1,000,000. Police department REHABILITATION CENTER in Boquet Canyon, Saugus, LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids Sept. 24. CD 9/3.

▲ **Baruch Corp.,** 321 S. San Vicente St., Los Angeles, Calif., CA, **$1,603,000,** 5 story, rein.-con. LIFE-SCIENCE Bldg., LOS ANGELES, CALIF. University of California, 405 Hilgard Ave., Los Angeles, Calif. Bids Aug. 12, awarded Sept. 19. CD 8/21, under LB.

▲ **C. A. Larsen,** Box 1208, San Diego, Calif., LB, **$1,259,774,** est. $1,000,000, 1 story 88,000 sq. ft. Kearny High SCHOOL, SAN DIEGO, CALIF. San Diego Unified School Dist., San Diego, Calif. Bids Sept. 23. CD 9/3.

Herbert & Crocker & Co., 1930 Fourth St., San Rafael, Calif., CA, **$799,006** Woodland Intermediate SCHOOL, WOODLAND Ave., SAN RAFAEL, CALIF. San Rafael School District, San Rafael, Calif. Bids Aug. 26, awarded Sept. 24. CD 9/10, under LB.

B & R Constr. Co., 110 Market St., San Francisco, Calif., CA, **$527,000,** 30,000 sq. ft., PAPER PLANT, OFFICE and LOCKER AREA, incl. BOILER HOUSE, railroad spur track, etc. E. Acacia St. TRACY, CALIF. American Reinforced Paper Co., c/o Wm. A. Corlett, archt., 347 Clay St., San Francisco, Calif. Bids Sept. 17. CD 9/17.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

October 17 Ontario

STREETS AND ROADS

October 17 Ontario

▲ **Ont., Ottawa**—COMMAND HEADQUARTERS—B.A. 10/14—R. P. Opie, engr. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 2 B, Ont., air material command headquarters bldg. at R.C.A.F. Station, Rockliffe, near here, Job 2156, $3,000,000. Plans deposit $100.

Sask., Dundurn—AMMUNITION MAGAZINES—B.A. 10/16—Defence Constr. Ltd., Kensington Bldg., Winnipeg, Man. 20 standard ordnance ammunition magazines for military base, $500,000. K. F. Hurst, c/o owner, regional engr. Bids Sept. 18 rejected.

Alta., Cold Lake—STEAM DISTRIBUTION SYSTEM—B.A. 10/21—Defence Constr. Ltd., Kensington Blvd., Winnipeg, Man. underground steam distr. sys. at air base, $500,000. K. F. Hurst, c/o owner, regional engr. CD 8/29, under LB.

▲ **B. C., Vancouver**—SHED—B.A. 10/22—C. P. Buckley secy. National Harbors Bd., Ottawa, Ont., Shed 1, La Pointe Pier, $1,000,000. Plans deposit $100.

▲ **Ont., Toronto**—B.A. 11/10—City, A. A. Lamport, Mayor, City Hall, 3 story, no bsmnt., 140x200 ft. incinerator 70 ft. high, steel, brick. $1,000,000. Plans deposit $25. K. S. Gillies, c/o owner, comr. Buildings. CD 9/23/49.

BIDS ASKED—BUILDINGS

▲ **Ont., Oshawa**—SCHOOLS—B.A. 10/16—J. B. Parkins & Assocs., archts., 717 Church St., Toronto, 1 story, 61x202 ft., concrete, steel, brick school, Woodcrest Ave., $300,000; 1 story, 61x202 ft., concrete, steel, brick school, College Hill, $300,000; 1 story, 61x202 ft., concrete, brick, steel school, Taylor Ave., $300,000; 1 story, 61x202 ft., concrete, steel, brick school, Alice St., $300,000, for Bd. Educ., Oshawa, Ont. Plans deposit $25 each. CD 10/4/49.

Ont., Toronto—SERVICE, etc.—B.A. 10/20—R.C.A. Victor Co. Ltd., 1001 Lenoir St., Montreal, Que., 1 story, steel, brick service and distribution center, Castlefield Ave. and Kincourt St. $500,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Thomas Fuller Constr. Co., Ltd.,** 199 Richmond Rd., Ottawa, Ont., CA, **$4,000,000,** cantilever hangar at Uplands Airport, Job 2078, OTTAWA, ONT. Defense Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont. Bids Sept. 3. CD 8/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M. Sullivan & Son Ltd.,** 234 Elgin St., Arnprior, Ont., CA, **$3,000,000,** 6 story, bsmnt., T-shaped, 48x346 ft. HOSPITAL addn., 48x190 ft., 5 story, bsmnt. wings, 2 story, bsmnt., 60x150 ft. administration wing, steel, frame and brick, CORNWALL, ONT. Religious Hospitallers of St. Joseph, c/o J. S Coleman, Royal Bank of Canada, Cornwall, Ont. Bids Aug. 6, awarded Sept. 29. CD 7/11.

▲ **The Foundation Co.,** 428 Richmond St., London, Ont., CA, **$1,600,000,** brick, concrete block HOME for the Aged, LONDON, ONT. City Council, City Hall, London, Ont. Bids Sept. 22, awarded Sept. 30. CD 8/29.

Pigott Constr. Co., Ltd., 36 S. James St., Hamilton, Ont., CA. **$500,000,** 3 story, concrete, brick, stone CONVENT, PEMBROKE, ONT. Reverend Sisters of St. Joseph, Pembroke, Ont. Somerville & Assocs., 1104 Bay St., Toronto, Ont., archts.

George Constr. Co., Ltd., 363 Rogers Rd., Toronto, Ont., CA. **$500,000,** Vehicle repair GARAGE, paint and display SHOPS, TORONTO, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. G. N. Williams, c/o owner, deputy minister and ch. archt. Awarded Sept. 25.

Defense Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont., will not construct standard ME GARAGE and REFUELING GARAGE, Job 1987, TRENTON, ONT. **$500,000.** Project cancelled. CD 5/14.

A. Robertson Ltd., 5035 Western Ave., Montreal, Que., CA, **$575,000,** 69x173 ft. concrete, brick, stone CHURCH, Dupuis St., MONTREAL, QUE. Roman Catholic Parish of St. Kevin, 3882 Maplewood Ave., Montreal, Que. H. J. Doran, 5171 Decarie Blvd., Montreal, Que., archt. CD 2/6/50.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Hong Kong**—Bids Asked—Crown Colony of Hong Kong, 1,000 ft. long, 150 ft. high, 1,150 Imperial Gallon concrete dam in Tai Lam Chung Valley on Chinese mainland. $6,500,000.

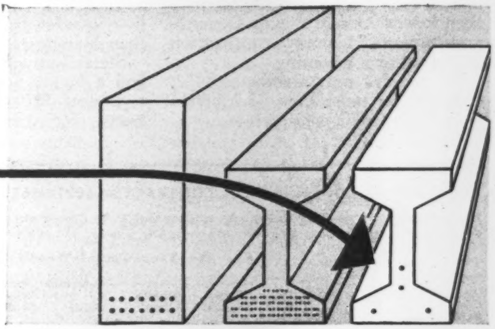
BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Canadian Overseas Projects, Ltd.,** c/o H. G. Acres & Co. Ltd., engrs., Niagara Falls, Ont., CA **$5,000,000.** supply cement PLANT for irrigation and relocation project, KARACHI, PAKISTAN. Govt. of Pakistan, Karachi.

STRESSTEEL

for prestressing



	Conventional reinforcement	Prestressing wires	STRESSTEEL bars
Steel:	14—1" diam. bars	78—0.196" diam. wires	4—1" diam. STRESSTEEL bars
Concrete:	910 lbs./foot	258 lbs./foot	258 lbs./foot

PRESTRESSED concrete means . . . savings in concrete . . . in steel . . . in deadweight . . . in foundation dimensions . . . plus longer span construction . . . reduced depth-to-span ratio . . . and better space utilization.

STRESSTEEL is the only steel of large diameter (½" to 1⅛") capable of the sustained high stresses necessary to prestress concrete.

Prestressing with STRESSTEEL as compared with wire prestressing systems, *results in labor savings often great enough to pay for the prestressing material itself.* STRESSTEEL tensioning units may be placed, stressed and anchored with only 25 to 45 man hours per ton, as against 130 to 150 man hours per ton of high carbon wire.

STRESSTEEL is available to the American construction industry on a price list basis, free from any patent restrictions or license requirements.

▶ ***Write today for your copy of the STRESSTEEL MANUAL, a functional sourcebook which sets forth in detail the applications, design data, specifications, material descriptions and construction procedures for Stressteel tensioning units.***

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Stressteel

Contract awards now 14% ahead of 1951

The construction industry operated at a record pace during the first nine months of this year, despite a drop in September. Construction volume for this period, as reported by Engineering News-Record, was 14% ahead of the corresponding period in 1951. Contract awards totaled $12.3 billion, compared with $10.7 billion during a similar period last year.

Contract volume dropped to $952 million in September. This was the lowest monthly total since February. Private contracts totaled $442 million for September. The public total was $510 million. State and municipal projects accounted for $268 million in the public total.

Despite the seasonal slowdown in contract awards anticipated for the balance of the year, 1952 contract volume is expected to top $14.5 billion. This would set a new record. The previous record was set in 1951 when total contract awards reached $13.6 billion.

• AEC boosts volume—Major factors in this record construction year have been federal Atomic Energy Commission projects, highway construction and private mass housing.

For the first nine months of 1952, contracts for more than $2.2 billion were let for AEC construction.

Highway contracts during this same nine-month period racked up as much dollar volume as in all of last year, nearly $1.2 billion.

Private mass housing in the first nine months of this year piled up a $2.3 billion contract award total, 12% more than in the entire 12 months of 1951.

Commercial building shows signs of recovering from its slump. But progress has been slow. Contract volume for the first nine months was only 6% under 1951, but it was 34% under the volume for a similar period in 1950.

Industrial building (with September the lowest month this year) was 36% behind 1951 for the first nine months. However, 1952 industrial building contracts are 77% ahead of the 1950 period.

• Regional analysis—Contract volume rose sharply in the Far West in September. That region led the nation with a total of $238 million, of which federal construction accounted for $152 million. Most of this $152 million was for federal buildings other than housing.

States west of the Mississippi also had a higher volume in September, registering $204 million in new contracts. Industrial building contracts for $37 million and private mass housing, with $38 million, were the largest single categories of construction.

The Middle West led the nation in private mass housing contracts during September. The area reported $67 million in new contracts. This helped to bring the region's total for all types of construction to $170 million for the month.

Contract volume in the Middle Atlantic region totaled $153 million in September, with $63 million in private mass housing and $31 million in highway contracts setting the pace.

The South had $131 million in new contracts for the month. Big items were $39 million for private mass housing and $22 million for new industrial plants.

New England registered $56 million in contract awards last month. Public buildings, other than housing, accounted for $16 million and industrial buildings, $12 million.

• Government predicts record volume—Two government agencies in a joint report also have predicted a new record for construction in 1952.

According to the Building Materials Division of the Department of Commerce and the Bureau of Labor Statistics, construction put in place this year is expected to set a new record

ENGINEERING CONSTRUCTION CONTRACTS—SEPTEMBER, 1952

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* **$34,000**; *other public works,* **$60,000**; ***industrial buildings,*** **$82,000**; *other buildings,* **$300,000**

Four Weeks—Thousands of Dollars (000 Omitted)

	September, 1952							U. S. Cumulative Nine Months		% Change	Canada September
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1952	1951	'51 to '52	1952
Public Works											
Waterworks	407	1,576	1,941	398	6,316	3,183	**13,821**	**169,223**	162,006	+ 4	816
Sewerage	552	2,775	2,666	5,421	7,964	4,708	**24,086**	**221,882**	244,548	− 9	895
Bridges	2,046	2,547	3,482	8,083	7,750	3,415	**27,323**	**274,516**	243,392	+13	925
Earthwork and waterways	....	122	2,568	214	17,547	10,148	**30,599**	**378,328**	422,586	−10	8,468
Streets and roads	4,817	31,460	16,439	16,417	29,694	10,886	**109,713**	**1,164,403**	916,052	+27	2,375
Public buildings, residential	1,766	8,114	....	3,435	592	4,404	**18,311**	**507,262**	558,022	− 9	309
Other public buildings	15,830	15,426	16,003	19,532	14,619	145,408	**226,818**	**3,778,877**	1,717,256	+120	11,467
Unclassified	10,495	8,883	10,425	2,855	13,439	13,557	**59,654**	**631,129**	816,232	−23	3,880
Total public	**35,913**	**70,903**	**53,524**	**56,355**	**97,921**	**195,709**	**510,325**	**7,125,620**	**5,080,094**	**+40**	**29,135**
Federal government (included in above classifications)	12,511	16,199	22,343	6,021	33,361	152,283	**242,718**	**3,975,414**	1,926,317	+106	11,257
Private											
Bridges	....	....	....	....	659	....	**659**	**15,179**	11,658	+30	....
Industrial buildings	11,976	3,764	21,749	33,904	36,801	4,375	**112,569**	**2,002,874**	3,153,355	−36	22,681
Com'l. buildings, residential	4,620	63,414	38,607	67,313	38,061	24,068	**236,083**	**2,278,687**	1,459,842	+56	7,577
Other commercial buildings	3,308	15,218	11,355	9,684	16,132	3,673	**59,370**	**470,464**	498,381	− 6	11,201
Unclassified	....	....	5,716	2,882	14,264	10,350	**33,212**	**363,184**	521,112	−30	1,535
Total private	**19,904**	**82,396**	**77,427**	**113,783**	**105,917**	**42,466**	**441,893**	**5,130,388**	**5,644,348**	**− 9**	**42,994**
Total Engineering Construction:											
September, 1952—4 weeks	**55,817**	**153,299**	**130,951**	**170,138**	**203,838**	**238,175**	**952,218**	....	....	....	**72,129**
August, 1952—4 weeks	27,423	197,818	206,780	1,456,194	179,609	142,748	**2,210,572**	....	....	....	57,500
September, 1951—4 weeks	43,968	127,004	165,769	135,426	325,993	118,998	**917,158**	....	....	....	149,700
Nine Months—1952	**459,570**	**1,881,871**	**3,063,627**	**2,885,462**	**2,586,160**	**1,379,318**	....	**12,256,008**	....	+14	**771,119**
Nine Months—1951	507,028	1,977,322	2,237,984	1,860,285	2,626,608	1,515,215	....	....	10,724,442	....	972,329
% Change '51 to '52	−9	−5	+37	+55	−2	−9	....	....	....	....	−21

high figure of more than $32 billion.

This would top the all-time high figure of 1951 by about $1 billion, the two agencies said.

This is how the government experts felt the construction year would shape up:

"Private expenditures totaling more than $21 billion will be only slightly below last year's figure and public construction is expected to increase 17%, to $11 billion. A large part of that increase will go into atomic energy plants and military and naval installations.

"Outlays for private residential building during 1952 are expected to be only a few percentage points short of the 1951 all-time record of $12.6 billion. The number of starts in the first five months of 1952 virtually equaled those of last year . . . and private starts will exceed the 1951 figure of 1,020,000 by about 3%.

"Expenditures for private industrial building should increase to $2.3 billion as the industrial expansion continues."

Louisiana to vote on industrial plan

Despite the loud opposition of bankers generally, Louisiana is preparing to add itself to the growing list of states seeking to attract industry through state-financed construction of factories and facilities.

Louisiana voters in November will be asked to approve a "balance agriculture with industry" plan almost parallel with one in effect in neighboring Mississippi.

The Louisiana plan would provide money for state-financed construction.

Under the plan, any parish, ward or municipality—on approval of a majority of property taxpayers voting in special elections—could issue bonds up to 20% of the assessed valuation of the governmental unit. The bonds would be sold at public sale, could not run more than 25 years, and would be redeemed by income from the facility built. If income were insufficient, the bonds would be paid off from general tax revenues.

Bankers have been protesting this type of community investment for several years—on the premise that such financing of private industry constitutes an illegal extension of tax-free credit. The bankers have actually boycotted sales of such bonds—and recently received support when the Florida Supreme Court ruled against such use of municipal credit.

Wage rates continue to advance, lumber prices down slightly

Engineering News-Record's Construction Cost Index moved up to 588.43 in October (1913 equals 100). This was a 0.4% increase over September and a 7.6% boost over October, 1951.

ENR's Building Cost Index (1913 equals 100) rose to 424.77 for a slight increase of 0.8% over September, and an increase of 5.3% over a year ago.

Skilled wages, as measured by ENR's 20-cities average for three key trades, moved up to $2.921 per hour in October. This was 0.4% higher than the $2.909 per hour average in September and 7.4% above the $2.719 average for October, 1951.

Structural ironworkers, carpenters and bricklayers turned up with higher average hourly rates in the month of October.

Common labor rates in building and heavy construction averaged $1.817 per hour this month. This was 0.8% above the $1.803 average rate for September and 10.4% higher than the rate that was established for October, 1951.

Lumber prices showed divergent trends this month as the average price of fir 2x4's dropped to $109.444 per Mftbm from $110.83 in September, while pine 2x4's went up slightly to $93.10 per Mftbm, compared with $93.066 in September.

Cement prices showed no change this month.

ENR's Construction Cost Index was higher in four cities in October and the Building Cost Index moved up in five cities. Falling lumber prices resulted in lower construction cost and building cost indexes in four cities.

Construction money to remain "Tight"

There won't be any major deflation for a year or two at least—and that probably will mean a continuance of the present tight market for construction money.

That much was clear this week after the speeches and cigar-smoke had cleared away at two widely-separated conventions of banking interests: the American Bankers Association at Atlantic City and the Mortgage Bankers Association at Chicago.

At both sessions, speakers of the caliber of Sumner H. Slichter of Harvard University; C. Francis Cocke, president of ABA; Senator A. Willis Robertson, of Virginia, and others, balanced the effects of government spending against probabilities of any kind of a business recession—and came up with the consensus that spending pressures will continue so great that there's no real recession in sight.

Said Slichter: Defense spending and foreign aid will reach a peak of $60 billion a year by next June or July—and won't start falling off from that level until late in 1954. Said Cocke: The Treasury's apparently easy acceptance of deficit financing will build more inflationary pressure. Said Robertson: The decision of the government to permit rises in interest rates will hold inflation within bounds.

- **Tight money**—The meaning of the statements—and those of other speakers at the meetings—was clear enough to construction men:

There'll be no easing to be found in the money markets that support construction.

That meaning was especially clear to one of the speakers at the MBA meeting—Alan E. Brockbank, president of the National Assn. of Home Builders. Mindful of the difficulties prospective home purchasers are encountering in finding mortgage money, Brockbank appeared before the bankers to impress them with what his association calls a need for 2,000,000 houses a year by 1970 to cope with increasing birth rates.

Among the needs for financing, Brockbank said, are mortgage loans for older people, financing for low-cost rental and sale housing for minority groups.

Inflation alone, of course, is not the only reason for the tight mortgage markets. Another, particularly dear to the hearts of the bankers themselves, is the low interest rates (4% and 4½%) permitted on GI and FHA loans. Financial opposition to these rates was crystallized in a MBA resolution calling for upward revision of these rates. The bankers claim there isn't enough differential between these rates and what bankers must pay for money.

State auditors rap construction policies

"Loose financial deals" between the state and its building architects and contractors, with waste of thousands of dollars, were scored last week as auditors completed a survey of Connecticut construction agencies.

Bi-partisan state auditors Joseph B. Downes and Raymond I. Longley strongly criticized some of the state's construction policies in their audit report of the state Public Works Department, covering the 1951 calendar year.

Without mentioning names of architects, engineers and contractors involved, the auditors cited numerous incidents where the state paid excessively for projects. This, they said, was due, at least partly, to the Public Works Department's "failure in planning and supervising the construction projects."

• **Changes cost money**—Rapping the agency for "lack of a firm policy . . . for architects and engineers," the audit report, which took more than three months to compile, cited this example:

An engineering firm was authorized to plan an institutional building to cost $150,000 but the plans were drawn and redrawn and specifications changed several times. As a result, the drawings, which were to cost only a few thousand dollars, ran to more than $20,000. The structure itself finally cost $200,000.

"The entire transaction was the result of poor over-all planning on the part of the state," the auditors said. "In certain instances, the architects and engineers apparently had incurred expenses in excess of the amount authorized by the state but had been reimbursed . . . by the state."

It is up to the state to see that architects "keep abreast" of construction costs to keep projects within the sums available, making expensive revamping of plans unnecessary, the financial men said.

Auditors Downes and Longley were also critical of the public works agency for not holding its ground in disputes with architects and engineers over fees.

"When there were disagreements over fees," they commented, "a letter of rebuttal from the consultant generally satisfied the division and the matter was dropped."

• **Faulty or inadequate plans**—Major fire was directed at numerous "Change orders" issued by the state on projects after the contracts were let to the lowest bidders.

Since the change orders were issued after construction was under way, and not subject to competitive bidding, the auditors said the state was often forced to pay excessive amounts for this additional work.

"Many of the change orders involved correctional work, obviously necessitated by faulty or inadequate plans," said the report.

In one case, cited by the auditors, a contractor submitted an alternative bid for $98,000 for extra work on a project he had been awarded. When the contract was let, the alternative project was ruled out. However, the project was later added on a change order and it cost the state $150,000.

In order to correct apparent overcharging by contractors, the auditors said the public works agency now limits profits on change orders to 15%.

They criticized the "failure of the Real Assets Division to enforce . . . that section of the contract requiring contractors to submit itemized schedules of values. The Real Assets Division is in need of increased bargaining power in its negotiations with contractors."

This was in reference to the matter of change orders where the auditors felt that the contractor working on the project left the state little alternative to paying the price he asked.

The audit was the first performed on the new Public Works Department's Real Assets Division, which handles construction work. The agency, which supervises more than $20 million in construction, came into being in 1951, replacing the old Real Assets Division of the state Comptroller's Office.

Hydroelectric projects set records this year

Hydroelectric projects put two new records in the books for the 12-month period ended June 30, 1952, the Federal Power Commission announced last week.

FPC issued licenses for hydroelectric projects having a total installed generating capacity of 1,410,900 kw and representing an investment of $363.7 million. Both figures are record amounts.

During the year, a record 125 applications for licenses were filed and 149 cases were completed for another new high.

Total installed generating capacity involved in the projects licensed during fiscal 1952 represented the first time this figure passed the 1,000,000-kw mark. The previous record was 777,400 kw for the period ended 12 months earlier when the total cost was $184.5 million—about half the amount for the year ended in June, 1952.

Out of the total cost of $363.7 million for fiscal 1952, about $304.3 million represented new construction, with the remainder going into existing projects.

Austin, Boeckh report higher building costs

Industrial building costs, as measured by the Austin Company's index, went up two points to 186 (1926 equals 100), during the third quarter. The company said increased labor rates were primarily responsible for the increase.

Another rise in building costs was reported by E. H. Boeckh & Associates. For brick and concrete commercial and factory buildings in New York City area, the August reading was 276.5 up 2.7 points from July (1926-29—100).

On a national average, the Boeckh index for brick and concrete commercial and factory buildings moved up 1.8 points in August to a new reading of 248.6 (1926-29—100).

Averaging all types of construction, the index for commercial and factory buildings went up 1.3 points to 246.8 (1926-29—100).

DPA grants tax benefits for 118 new projects

Certificates of Necessity for fast tax write-offs for 118 new defense projects, amounting to $209 million, were issued by the Defense Production Administration from Sept. 18 through Sept. 24.

The largest three certificates announced were: Southern Natural Gas Co., Birmingham, Ala., natural gas transmission facilities, $80 million; E. I. du Pont de Nemours & Co., Victoria, Tex., $33.4 million; and Gulf Improvement Co., Pascagoula, Miss., nitro-phosphate fertilizer, $14.6 million.

Contracting firm sold

One of the largest building and contracting firms in the Pittsburgh, Pa., area, McGrady-Rodgers Co., has been sold to Los Angeles interests. President William McGrady said Samuel C. Rudolph & Associates, of Los Angeles, agreed to buy a controlling interest in the company.

New England blueprints industrial growth

The dream of a large-scale revitalization of the New England economy received some realistic, if hopeful, support last week from two closely related developments. The construction industry had a stake in both.

The region heard a plan for long-range development of new industries from the Arthur D. Little Company, a Massachusetts research and engineering firm. And, for the power to turn the wheels of industry, 16 New England utilities took the wraps off a 30-year, $3-billion expansion program.

The utilities' expansion, already under way, was pinpointed during the week by a $30-million contract award for an addition to Boston Edison's Edgar Power Plant at Weymouth, Mass.

Howard J. Cadwell, president of the Massachusetts Electric Co., and chairman of the Electric Co-ordinating Council of New England, disclosed the utilities expansion plans at a meeting of the council.

• $3-billion minimum—Cadwell said the $3-billion program outlined is actually a minimum. The estimate for new generation, transmission and distribution needs was based on present day costs. The program includes steam generating and power installations from Maine to Connecticut.

The program would boost New England's power capacity to a minimum of $9,298,000 kw by 1975; by comparison, the region in 1945 had a capacity of 2,743,000 kw.

Cadwell conceded that new inventions and discoveries in the electrical field might change the expansion schedule. But, he said, any changes should be on the side of increased power consumption.

Although the utilities are co-ordinating their output goals, financing of the program will be handled individually by the 16 companies, Cadwell explained.

• "Yankee ingenuity"—With this as background, there was increased interest in the Little study, conducted for the Federal Reserve Bank of Boston. The study gave some pointed clues on how New England could, with the help of Yankee ingenuity, turn some apparent liabilities into assets.

A long list of new opportunities for industrial growth in New England recommended specifically new plants, products and industry for the area. More than 15 new industries could be developed successfully in New England, according to results of the study.

Some success has been achieved already along these lines in recent years. Despite major elements of the textile industry which left New England to build new plants in the South, fast-growing industries in New England—such as electrical machinery and transportation—have more than offset employment losses. In fact, during the period from 1947-51, the overall increase in manufacturing employment was more than 10,000.

• Industrial building stays high—Tied in closely with this is the amount of industrial building now under way in New England. This type of construction is going strong this year.

New contracts for industrial building in New England this year, as reported by ENGINEERING NEWS-RECORD, total $75 million, or about double the annual average for the 1946-50 period, when this type of construction was steadily declining in New England.

Contract volume has not yet reached the $107-million record mark for 1951. It may not. However, it has remained at a relatively high level this year and the future looks good.

ENR's backlog of industrial building, as of Sept. 1, showed a total of $186 million in proposed industrial building in New England. This was more than twice the $87-million backlog reported at the start of the Korean war. New England's industrial backlog has grown by $50 million in the first eight months of this year alone.

The projects in the backlog could be just the beginning of a New England construction boom if recommendations of the Little report were adopted.

Here is how the research firm analyzed industrial opportunities for the region:

Aluminum: "The application of aluminum to new technical uses foreshadows the growth of the basic aluminum industry for civilian uses. New England has many of the industries that utilize aluminum, and growth of the industry in the region is therefore worth considering.

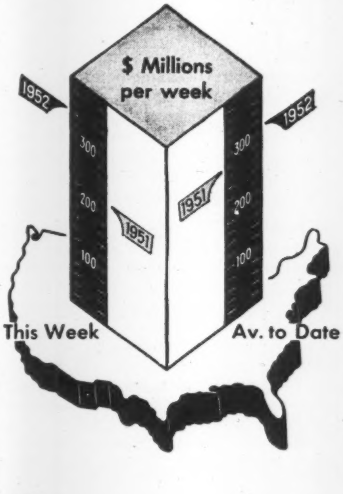
"It is recommended that New England ports be studied for possible establishment of facilities to separate alumnia from bauxite to serve the requirements of nearby reduction plants in New York state.

"Since aluminum metal is available by water from Gulf ports and by rail from nearby points, it is also recommended that consideration be given to establishment of new fabrication plants for primary shapes."

Atomic energy: "During the next

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

	This Week	Cumulative 41 wks 1952	Cumulative 41 wks 1951	Cumulative 41 wks % chge
Waterworks	$4.3	$176.9	$167.9	+5
Sewerage	7.2	232.5	265.8	−13
Bridges	13.1	315.2	268.1	+18
Highways	37.9	1,219.8	968.6	+26
Earthwork, waterways	6.0	387.6	428.5	−10
Buildings:				
Public	48.2	3,851.4	1,790.4	+115
Housg., pub.	7.3	531.6	562.6	−6
Housg., priv.	70.2	2,403.4	1,548.8	+55
Commercial	21.5	501.0	520.0	−4
Industrial	106.4	2,175.9	3,426.5	−36
Unclassified	19.5	1,037.5	1,419.9	−27
Total	$341.6	$12,831.9	$11,367.1	+13

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	Oct.	588.43	282.86	123.27
	Sept.	586.08	281.73	122.86
Bldg. cost	Oct.	424.77	229.62	120.70
	Sept.	424.40	229.42	120.64
Volume	Sept.	441	179	127

10 years, one of the big questions in the atomic energy field will be industrial atomic power," the report said.

"If atomic power is developed to a point where it can produce electricity at rates below those of commercial plants, New England is . . . going to be affected more than some . . . areas in the country because of its higher cost of electricity."

Because of this, the report said, many new industries, requiring large amounts of power, might be attracted to New England. Lower-cost power might also stimulate more domestic consumption, with secondary effects on demand for electrical appliances.

• **Cheaper cement**—The report's study of the cement situation gave the construction industry hopes of cheaper cement at some future date. With Maine the only New England state producing cement, the region was short almost 7,000,000 barrels in 1949. It bought the 7,000,000 barrels from the Lehigh Valley and New York state.

There are believed to be adequate deposits of limestone in New England, the report said. Although fuel costs would be higher for a New England cement mill, the freight advantage enjoyed over Lehigh Valley competition would be substantial.

It disclosed that a New England producer would hold a net advantage of about $4 per ton over outside competition.

Although the chemical industry is not likely to become one of New England's major industries, production of rayon and ethical drugs can be developed.

Cutlery, hand tools and general hardware can be expanded. New England supplies one-quarter of the nation's needs for these products, but could diversify production and take an even larger share.

Electronics is now an established industry in New England because of good research facilities, skilled labor and management. This fast-growing industry will mean more plants going up.

Other good prospects, the report said, are glass fiber products, instruments, lighting fixtures, non-electrical machinery, oil refining, plastics, pulp and paper.

Two other prospects listed were a small, non-integrated steel mill, designed to supply about one-half of the region's postwar annual demand of 122,000 tons of carbon steel bars, and a titanium reduction plant.

The dream of a New England steel mill has been cherished for a long time. New London, Conn., was a favorite proposed site (ENR Aug. 21, p. 90). The present hope for a smaller, non-integrated steel mill might be more easily realized.

Titanium is another matter. The report explains the prospects this way: If present technical work on the Kroll process for reduction of titanium is successful, the possibility of New England as the location for a reduction plant would appear feasible. The reason is that the Kroll process involves a combination of chemicals and titanium at high temperatures. New England is strategically located with respect to one of the growing sources of titanium ore, the deposits at Sorel, Quebec.

Home builders face tighter selling market

With prospects of a sharp reduction in housing starts during the next two years, the home-building industry must implement and expedite an aggressive selling job to Mr. and Mrs. John Q. Public. Such a program might sell 1,000,000 houses a year.

Furthermore, the industry must convince Congress that VA and FHA housing contain only top quality materials, erected by competent methods. Otherwise, it faces the threat of federal legislation embodying at least a high nuisance value, if not a real shackle on private enterprise.

These sober warnings were spelled out last week in Chicago by representatives of the National Association of Home Builders. They weren't talking to a large group (150), but few meetings have registered such interest by those in attendance.

The reasons: It was a joint meeting of the NAHB, members of the Producers Council, home builders, and manufacturers of home-building supplies. And the subjects under discussion—by prepared papers and informal discussions from the floor—centered around the very heart of the home-building industry, faced with a tightening sellers' market.

• **Estimates**—The most pessimistic estimates of future demand place the number of starts in each of the next few years at slightly more than 50% of the peak year of 1950. More realistic estimates, however—based on all known factors adversely affecting the demand and those that will create new demand—place the number of housing units to be built annually for the next few years at 730,000.

Even this estimate is low, contends Leonard G. Haeger, NAHB researcher, who believes new housing construction will exceed 1,000,000 units per year, at least through 1954. This level might very well continue until 1960, after which it should take a decided upturn, he said.

Alan E. Brockbank, president of the NAHB, saw the threat of legislative action that might take the form of requiring a set of housing plans and specifications to be attached to each VA or FHA sales contract. This might open the door for continual inspection during construction, by the buyer and his family, creating a nuisance in many cases. Another possible legislative requirement in VA and FHA construction is that a one-year unconditional warranty would have to be given by the contractor on such components as: roof, plumbing, electric wiring, heating, waterproofing of basements, and septic tanks when they are part of the construction.

All-weather road link urged in Colorado

Tunnel construction to give eastern and western Colorado an all-weather road link should be started at the earliest possible time "consistent with available funds," a special subcommittee has reported to Colorado's long-range Highway Planning Committee.

The subcommittee said U. S. Highway 6, which crosses the Colorado Rockies over 12,000-ft Loveland Pass, should be given priority over other projects.

The Loveland Pass tunnel would be the shortest required on any major highway in the area; would not require any major construction for new approaches; and could be built at the present site of the Pioneer tunnel, the subcommittee asserted.

Colorado Highway Department officials, however, have temporarily shelved the tunnel project.

The full Highway Planning Committee, after hearing the report, asked the subcommittee to continue its studies, concentrating on tunnel costs and sources of revenue.

Concrete awards up

Awards of Portland cement concrete pavement for the month of September, as reported by the Portland Cement Assn., totaled 5,536,507 sq yd, 28% above September, 1951. The biggest single rise came in concrete pavement for airports. Awards in this category totaled 1,690,507 sq yd last month, 269% above September, 1951. Road awards were down 37% while concrete awards for streets and alleys were up 27%.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

Bids: October 29, 1952

Pipe Line

SCRANTON-SPRING BROOK WATER SERVICE CO.
LIMESTONE-DANVILLE TRANSMISSION PIPE LINE
INVITATION TO BIDDERS

Proposals will be received for the construction of a 9.4 mile gas transmission pipe line 10 inches in diameter from an existing gate house near Limestoneville to Danville regulator station, Montour County, Pennsylvania, until 1 o'clock P.M., (E.S.T.), Monday, October 27, 1952.

Proposals shall be addressed to the above company at 30 North Franklin Street, Wilkes-Barre, Pennsylvania, and be enclosed in a sealed envelope.

A bid bond or certified check in the amount of $20,000 shall be presented with each proposal in a separate envelope, marked "Bid Bond", as surety for the execution of a contract or contracts awarded to the successful bidder or bidders.

Proposal forms, plans, contracts, documents and specifications may be secured at the office of the company at 30 North Franklin Street, Wilkes-Barre, Pennsylvania, or by written request, at a cost of $25.00 per set. This deposit will be returned upon return of the plans and specifications in good order within 10 days after the bid opening.

1. VISIT TO SITE

1.01. All bidders are required to visit the site of the work and to certify in their proposal that they are familiar with the terrain, the location of available public transportation, the condition of the labor market and the prevailing wage rates. The site may be inspected beginning the 6th of October and Plans and Specifications will be ready for distribution on the 13th of October.

1.02 A representative of the Owner will accompany bidders to point out the site location, but no statements made by such representative shall in any way bind the Owner.

2. NATURE OF WORK

2.01 The work described in detail in the specifications and shown on the drawings consists of the laying of approximately 9.4 miles of 10 inch gas pipe line from a point near Limestoneville, to Danville, both in Montour County, Pennsylvania.

2.02 From the existing valve house near Limestoneville, about 300 ft. south of Route 254, the pipe line will be laid over the Owner's private right of way, to Route 54, and thence along Route 54 to the Borough line of Danville, and thence via alley and streets of the Borough to the Owner's regulator station in Danville, a total distance of about 9.4 miles. The Contractor or Contractors shall haul the pipe and appurtenances from the storage points indicated to the site of the work along the pipe trench.

2.03 The pipe line shall be welded throughout by certified welders, by electric or gas welding and the successful bidder shall provide the welding rod materials.

2.04 The Owner will furnish all of the 10.750 inch O.D. 34.24 lbs. per foot steel pipe in random lengths from 20 ft. and longer, all plug valves, tube-turns, couplings, blow off cocks, air cocks, valve boxes, and bitumastic enamel.

(a) Pipe will be delivered by truck from Sparrow's Point, Maryland, to the following points of temporary storage.

At Danville Regulator Station — approximately—12,000 ft.
On Route 54 at the Owners
Private Right of Way—approximately —23,050 ft.

(b). Pipe will be delivered by rail from Youngstown, Ohio to the following points of temporary storage.

At Potts Grove, Pa.—approximately— 14,614 ft.

(c) Paint will be delivered to Danville regulator station and Potts Grove.

(d) Small cocks and miscellaneous small items will be stored on the Owner's property at Milton, Pennsylvania.

(e) Couplings will be stored at the Owner's regulating station in Danville, Pennsylvania.

3. EQUIPMENT

3.01 The successful bidder shall supply all of the equipment required for performing the laying of the pipe in the most expeditious manner, including excavating machinery, welding equipment, lifting machinery, testing equipment, backfilling equipment, transportation equipment, and painting equipment.

3.02 A list of the type of equipment the bidder will employ, shall be filled out on the sheet attached to the proposal.

4. PROPOSALS

4.01 Section 1—Bids for the work on the private right of way will be received on the basis of a lump sum per 1,000 feet and proportionally for fractions thereof. Approximate distance 29,434 ft.

Section 2—Bids for the work along Route 54 and in Danville, approximately 20,230 ft., will be received on a unit price basis as indicated in the proposal form.

4.02 An award may be made for both sections of the work to one contractor if the bidder can demonstrate that he possesses the facilities to execute the entire work to the satisfaction of the Owner. Awards may be made to two bidders, one for each section, if it appears to be to the Owner's interest by the comparison of bids and the total time required to complete the work.

4.03 Bidders will be required to state the number of working days required to complete the entire work, or each section thereof, as indicated in the proposal form. Time is of the essence of the contract.

5. WORKMEN'S COMPENSATION

5.01 The successful bidder shall provide proof of carriage of Workmen's Compensation Insurance in accordance with prevailing statutes.

6. BONDS

6.01 The successful bidder shall provide the bonds stated in the General Conditions in the amounts required by the Owner, and the Owner will reimburse the contractor for the cost of said bonds.

7. INSURANCE

7.01 The successful bidder shall furnish in the name of the Owner, certificates of insurance against public liability and property damage in the amounts required by the Owner, and the Owner will reimburse the contractor for the cost thereof.

8. ACCEPTANCE OR REJECTION

8.01 The Owner reserves the right to accept or reject any or all bids, and any part of any bid.

Pennsylvania Department of Highways, Harrisburg, Pennsylvania. Sealed proposals will be received at the office of the Secretary of Highways, Room 506, North Office Building, State Capitol, until 11:00 a.m., eastern standard time, October 31, 1952, when bids will be publicly opened and scheduled and contract awarded as soon thereafter as possible for the construction of a steel arch and I-beam bridge having a total overall length of 425 feet and approximately 1843 linear feet of crushed aggregate base with bituminous surface 22 feet and variable in width and 554 linear feet of grading and drainage. Sullivan County (New York), Tusten Town, Wayne County (Pennsylvania), Damascus Township, L.R. 335(4), T.R.106. Bidding blanks and specifications may be obtained free; a charge of $7.50 a set is made for construction drawings and a charge for cross sections will be $5.00. Both may be obtained upon application to the Pennsylvania Department of Highways, Harrisburg. A refund for drawings or cross sections returned will not be made. They may be seen at the offices of the Pennsylvania Department of Highways, Harrisburg; Pennsylvania Company Bank Building, 7 East Lancaster Avenue, Ardmore; Wabash Building, Liberty Avenue and Ferry Street, Pittsburgh; Wyoming Avenue and Ash Street, Scranton, Pennsylvania and 71 Frederick Street, Binghamton, New York; State Office Building, Albany, New York; State Office Building, 270 Broadway, New York City, New York. E. L. Schmidt, Secretary of Highways.

Bids: October 28, 1952

PUMPS, ELECTRIC MOTORS, ETC.
CONTRACT 413

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, October 28, 1952, for Contract 413, for furnishing, testing and delivering deep well turbine pumps and deep well plunger pumps, electric motors and appurtenances for the Neversink intake chamber, the Downsville release water chamber and the intake and outlet chambers of the East Delaware tunnel, of the Delaware system, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of four thousand dollars ($4,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: October 21, 1952

The Imperial-Compton Project

PUBLIC HOUSING
BID DATE POSTPONED

(Imperial-Compton Project, Cal 4-13)

The Housing Authority of the City of Los Angeles, California, has extended the bid opening date, for the Imperial-Compton Project, Cal 4-13, from October 7th, 1952, to OCTOBER 21, 1952, and will include in the proposal the construction of a Community Building and other additions to the scope of the work. Plans and Specifications for the Community Building are now available.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3816) will be received at Ogden, Utah, until November 4, 1952, for furnishing labor and materials for construction of Gateway Tunnel, Weber Basin Project, Utah. Location: Near Ogden, Utah. Principal items are: Excavation, 65,000 cu. yds.; concrete 17,500 cu. yds.; furnishing and installing permanent steel supports, 824,000 lbs.; and other work. Completion time 1,095 days. For particulars, address Bureau of Reclamation, Ogden, Utah; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSAL

RATE: The rate for Official Proposal Advertising is $1.50 per line (or fraction) per insertion.

COPY RECEIVED: up to 10:30 A.M. Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: to Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: October 16, 1952.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on October 16, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

OFFICIAL PROPOSALS

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2 LACY KETCHUM, District Engineer, 109 No. Genesee St., Utica, New York						
Montgomery	S.T. 52-23	Bullshead Road C.R. 23 & Pattersonville Rd. CR 20 Crossing the N.Y.S. Thwy.- Mohawk Section-Subd. 16 (So. Amsterdam By-Pass- Pattersonville)	0.69	Asp. Conc. Ty. 1A, Opt. Hy. Sep. 4 Sp. Alpha I-Beam 282′ Hy. Sep. 4 Sp. Alpha I-Beam 201.83′	$20,000 Plans $15	$371,000
DISTRICT No. 4 J. P. LARSEN, District Engineer, Barge Canal Terminal, Rochester, New York						
Genesee	FAC 52-14	Batavia City: Main St. & Oak Street Extension Proj. U-706(3); U-377(10)	0.78	Asp. Conc. Ty. 2A 3 Sp. Br. Alpha I-Beam 148′	40,000 Plans $15	692,000
Genesee & Monroe	S.T. 52-22 O.T. 52-14 R.C. 52-102	New York State Thruway- Ontario Section- Subdivision 5A, 5B, 6A, 6B, 7A West Bergen Road: Beulah Rd.; Palmer Rd.; Winslow Rd.; Wheatland Center Rd.; Union Street Rd.; Batavia- Bergen Pt. 1, SH 8179; Stafford-So. Byron-Byron Pt. 1, SH 1865; Le Roy- Brockport Pt. 3, SH 1730 Riga-Mumford, SH 1284; Scottsville-Chili, SH 5279;	1.04 Thwy. (4.48 Acc.)	9″ Cem. Conc. Pavt. 2 @ 25′ & 22′ = 1.71 Mi. Asp. Conc. Ty. 1A, Opt. = 3.81 Mi. Hy. Sep. 4 Sp. Alpha I-Beam 237.67′ Twin Br. I-Beam 46.2′ Each Hy. Sep. 5 Sp. Alpha I-Beam 294.75′ Hy. Sep. 4 Sp. Alpha I-Beam 223.92′ Hy. Sep. 4 Sp. Alpha I-Beam 266′ Hy. Sep. 4 Sp. Alpha I-Beam 207.03′ Hy. Sep. 4 Sp. Alpha I-Beam 230.75′ Hy. Sep. 4 Sp. Alpha I-Beam 224.75′ Hy. Sep. Rig. Frame 31′ Hy. Sep. 4 Sp. Alpha I-Beam 255′ Hy. Sep. 4 Sp. Alpha I-Beam 226.47′ Hy. Sep. 4 Sp. Alpha I-Beam 234.86′	200,000 Plans $100	3,400,000
Ontario	FAC 52-8P FAC 52-9 FAGC 52-10	Geneva City: Lake Front Arterial, Pts 1 & 1A Proj. U-UG-452(6)	0.98 (Acc. 0.14)	9″ Cem. Conc. Pavt. 48′-58′ Wide = 0.99 Mi. Asp. Conc. Ty. 1A, Opt. = 0.11 Mi. Misc. Work = 0.02 Mi. R.R. Sep. Alpha I-Beam 326.08′ Hy. Sep. Rig. Frame Arch 70′	$75,000 Plans $25	1,370,000
DISTRICT No. 6 H. F. BRUMM, District Engineer, State Office Building, Cornell, New York						
Schuyler	FARC 52-99	Watkins-Lodi, Pt. 3 S.H. 8035 Proj. F-626(4)	1.41	Asp. Conc. Ty. 1A, Opt. 22′ Sp. R.C. Arch Br.	$35,000 Plans $15	613,000
DISTRICT No. 8 J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Westchester	HT 52-3	N. Y. State Thruway-Hudson Section Sub. 9B (Hudson River Bridge)	0.92	Dredging Foundation Work (Including Caisson & Piles) & Misc. Work	725,000 Plans $25	13,208,000
DISTRICT No. 10 J. J. DARCY, District Engineer, Montauk Highway, Babylon, Long Island, N. Y.						
Bronx	FACBE 52-1	Cross-Bronx Expy. Cont. 9S, Proj. UI-1084(16)	Exp. 0.65 (Acc. 1.72)	9″ Cem. Conc. Pavt. 2 @ 36′ & Var. = 0.95 Mi. Sheet Asp. Pavt. = 1.23 Mi. Misc. Work = 0.19 Mi. Hy. Sep. 2 Sp. Rig. Frame 99.67′ Hy. Sep. 2 Sp. Rig. Frame 103′	$262,000 Plans $100	4,813,600
Bronx	FAMDE 52-5	Major Deegan Expressway (Contract 6) Proj. U-1082(12)	1.29 Exp. (0.28 Acc.)	Grading, Drainage & Misc. Work = 1.29 Mi. Sheet Asp. Pavt. = 0.12 Mi. Cem. Conc. Pavt. = 0.16 Mi. Hy Sep. Alpha I-Beam 119.69′ Hy. Sep. Alpha I-Beam 98.55′	$415,000 Plans $100	7,520,000
Kings	FABQE 52-1	Brooklyn-Queens Exp. (Cont. 16) Proj. U-1066(9)	0.80	Demolition of Bldgs.	$30,000 Plans $10	510,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: October 21, 1952

Construction of a Collecting Sanitary Sewer System and Appurtenances

Sealed proposals will be received by the Springettsbury Township Sewer Authority of Springettsbury Township, York County, Pennsylvania, in the Springetts Fire House, 2914 East Market Street, York Penna., until 8:00 P.M. Eastern Standard Time, the day of October 21, 1952, for the CONSTRUCTION OF A COLLECTING SANITARY SEWER SYSTEM AND APPURTENANCES IN SPRINGETTSBURY TOWNSHIP, YORK COUNTY, PENNSYLVANIA, at which time and place they will immediately be publicly opened and read aloud.

The work under this contract will consist of the Construction of Approximately 16,900 lineal feet of Vitrified Clay Pipe Sewer 8″ to 30″ diameter and approximately 1,200 lineal feet of C.I.P. 8″ to 24″ in diameter placed near Mill Creek in Springettsbury Township, York County, Pennsylvania. Also an inverted siphon beneath Codorus Creek. Manholes, diversion chambers and appurtenances included.

The information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Weigle Engineering Company, # 30 North Duke St., York, Penna., copies thereof may be obtained at the said office of the Weigle Engineering Company, upon payment of $30.00 for each set. Any bidder upon returning such set in good condition will be refunded his payment and any non-bidder upon so returning such set will be refunded $15.00, provided that said Plans and Specifications are returned within 15 days after the date of the opening of Bids. If the plans and specifications are not returned within the stated time the entire amount of the deposit will be forfeited.

The Springettsbury Township Sewer Authority reserves the right to waive any informalities in, or to reject, any or all bids.

A bid bond or certified check made payable to the Springettsbury Township Sewer Authority in the amount of five (5%) per cent of the bid must be deposited by each bidder with his bid as a guarantee that in the case the contract is awarded to him, that he will within five (5) days, execute such contract and furnish a satisfactory Performance Bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful bidder will be required to furnish a Performance Bond in the amount of the Bid submitted, and a separate Labor and Materialman's Bond in an amount equal to 50% of the total of the bid submitted. These bonds shall have a Surety Company or Companies thereon as are acceptable to the Authority.

No Bidder may withdraw his bid within forty-five (45) days, after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

SPRINGETTSBURY TOWNSHIP
SEWER AUTHORITY
Ned W. Spangler, Secretary
220 South Vernon Street
York, Pennsylvania

Date: October 5, 1952

U. S. Government

GOVERNMENT OF THE DISTRICT OF COLUMBIA, Director of Sanitary Engineering, D. C., September 19, 1952. Sealed proposals will be received in Room 429, District Building, 14th and E Streets, N. W., Washington 4, D. C., until 2:00 P. M., OCTOBER 16, 1952, EASTERN STANDARD TIME, and then publicly opened and read for Chlorination Plant, Structures and Equipment (Unit 20), Sewage Treatment Plant, Washington, D. C. This project will house equipment furnished by others, for Pre- and Post-chlorination in a Sewage Treatment Plant to serve 1,500,000 persons. Proposal Forms, Drawings and Specifications may be obtained from the Chief Clerk, Engineer Department, (Secretary, Contract Board, D. C.) Room 427, District Building, upon the deposit of a certified check made payable to the Collector of Taxes, D. C., in the amount of FIFTY DOLLARS ($50.00 for each set). (Telephone National 6000, Extension 2378.

OFFICIAL PROPOSALS
(Continued from opposite page)

Bids: October 23, 1952

Water Pumping Plant

LOW LIFT STRUCTURE
NORTHEAST STATION
FOR THE
DEPARTMENT OF WATER SUPPLY
CITY OF DETROIT, MICHIGAN
CONTRACT NO. NE-3

Sealed proposals for the construction of the Low Lift Structure for the Northeast Station, at 11000 East Eight Mile Road, will be received by the Board of Water Commissioners of the city of Detroit. Proposals shall be addressed to the Board of Water Commissioners, City of Detroit, Room 506 Water Building, 735 Randolph Street, Detroit 26, Michigan, and shall be endorsed "Proposal for Contract No. NE-3". Proposals will be received until 10:00 A.M. Eastern Standard Time, October 23, 1952, at which time they will be opened and read aloud in the Board Room, Fifth Floor, Water Board Building, 735 Randolph Street, Detroit 26, Michigan.

Included in the work is the completion of the construction of the substructure and the construction of the complete superstructure of the Low Lift Plant of the Northeast Station within and upon an existing foundation which was constructed as an open caisson. The existing caisson is of reinforced concrete construction, circular in plan, 94 feet in outside diameter with walls 8 feet thick, is approximately 110 feet in depth below Elevation 130 and rests on material classified as hardpan. The work within the existing caisson portion and in the complete substructure includes the construction of heavy reinforced concrete pump suction and discharge flumes, surge flumes, collecting channels, and fireproof structural steel framing with concrete and steel grating floors. The superstructure is to be constructed circular in plan with an outside diameter of 104 feet (approximate), with a height of 55 feet (approximate), finished grade to top of coping, with structural steel rigid frames, reinforced concrete roof, masonry walls with limestone and granite facing and ceramic tile interior finish. The work also includes the furnishing and installation of a 20 ton bridge crane, an hydraulic hoist, passenger elevator, lighting, heating, ventilating, plumbing, sluice gates, miscellaneous large and small piping systems, large pump suction and discharge castings and fittings, some 54-inch diameter water main, and the installation of gate valves. The main pumping units and dewatering pumps will be furnished and installed under other contracts.

The Contract Documents, including the Notice to Bidders, the Forms of Proposal and Agreement, the Specifications, and the Contract Drawings may be examined during business hours, at the office of the Department of Water Supply, Room 706 Water Board Building, Detroit, Michigan. The Contract Documents may be obtained by making a deposit of Seventy-Five Dollars ($75.00) per set, which sum will be refunded upon the return of the complete Contract Documents in good condition within thirty (30) days after the bid date, or if used in making a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than five per cent (5%) of the total lump sum price bid, drawn payable to the City of Detroit, Board of Water Commissioners, as security for the acceptance of the Contract.

No proposal may be withdrawn for at least sixty (60) days after the scheduled closing time for receipt of bids.

The Board of Water Commissioners reserves the right to waive any informality in any bid and to accept any bid, or to reject any or all bids, should it deem it to be in the best interests of the City of Detroit so to do.

CITY OF DETROIT
BOARD OF WATER COMMISSIONERS
Oscar Wagner, President
George A. Shaffer, Vice President
Alfred J. Simpson
R. K. Williams
L. G. Lenhardt, Superintendent,
General Manager and Chief Engineer
E. H. Bauer, Acting Secretary

U. S. Government

BIDS FOR REPLATING STEEL BARGES —Memphis District, Corps of Engineers, U. S. Army, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received until 11:00 a.m., C.S.T., 21 October 1952, and then publicly opened for replating ten steel material barges. Information on request.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: ''OPPORTUNITIES'' :EQUIPMENT
BUSINESS: :USED OR RESALE

UNDISPLAYED RATE

$1.50 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

POSITION WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.

Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $17.10 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

An advertising inch is measured ⅞ inch vertically on one col., 3 col.—30 inches to a page. E.N.R.

NEW ADVERTISEMENTS: Address N. Y. office, 330 W. 42nd St., N. Y. 36, N. Y., for October 23rd issue, closing October 13th.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

ARCHITECTURAL SPECIFICATION writer, assistant, with knowledge of construction trades and building materials, for large Detroit office. Experienced man preferred, but will train architectural or civil graduate with proven writing aptitude. Long term employment with nationally known architects and engineers. Salary $5000-$6500 to start depending upon experience and education. Send resume of above, with data available. P-4976, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT for New York school. Must be a pusher. Good salary and future. Reply strictly confidential. Complete resume to P-5571, Engineering News-Record.

EXPERIENCED CONCRETE foreman or engineer to supervise 25 workers in concrete products plant. Permanent position. State experience and salary expected. Box 274, Union, N. J.

EXPERIENCED MAN for structural steel detailing, checking, or estimating. Send name, address, and list of qualifications to: Fabricated Steel Products of Indiana, Inc., 2025 South Main Street, South Bend 14, Ind.

PRODUCTION ENGINEER for large concrete products manufacturing concern operating a number of plants, manufacturing sewer, pressure and concrete pipe and other products in the eastern half of the United States. Applicant should be graduate Civil Engineer with field construction experience, ability to handle men and manage a production plant or field project. Excellent proposition with a bright future. Write P-5381, Engineering News-Record.

PROJECT MANAGER wanted for large industrial and heavy construction projects. Permanent position for experienced, aggressive man. Send complete experience resume to Geo. Sheaf & Company, 449 Neiliston Street, Columbus 3, Ohio.

SALES ENGINEER for large concern in construction field. Must have degree in engineering. Prefer person having experience in contacting engineers and contractors. Position is located in Florida. P-5382, Engineering News-Record.

SALES ENGINEER—We need Engineers with concrete or concrete construction experience who would rather deal with people than drawing boards or "T" squares. Must have sales ability and potential to advance to district manager. Limited travel, location New York, Chicago, Montreal and possibly other cities. Sika Chemical Corporation, Passaic, New Jersey.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions, top rates. Only top quality men. Send complete written information. Bristol Steel and Iron Works, Inc., Bristol, Virginia-Tennessee.

YOUNG CIVIL engineer or construction superintendent for contractor for highway and bridge operations in Midwest. Should have field experience, must be able to do estimating, buying, expediting and supervising. Must be aggressive and ambitious for advancement. Will receive proper salary. Write giving age, experience and qualifications. P-5579, Engineering News-Record.

WANTED EXPERIENCED Structural Engineer and Designer to act as Chief Engineer and take charge of office estimating and detailing. Salary open, only top quality men. Send complete written information to Ohio Valley Steel Company, Wheeling, W. Va.

POSITIONS VACANT

WANTED: SUPERINTENDENT or Estimator with experience in underground utility construction—electric and telephone conduits, gas mains, manholes, etc. Permanent position with long established New England contractor. Write P-5361, Engineering News-Record.

WANTED — SUPERINTENDENT for sewer, water, bridges and similar concrete work. Send qualifications, experience and salary expected to: United Construction Company of Michigan, 320 Houseman Building, Grand Rapids 2, Michigan.

SELLING OPPORTUNITIES OFFERED

ATTENTION SALES Engineers! Here's an excellent opportunity for individuals having experience in contacting engineers and contractors. Must have degree in Civil Engineering. State briefly your experience in first letter. Write SW-5383, Engineering News-Record.

(Continued on the following page)

SR. FIELD ENGINEERS

CIVIL ELECTRICAL

Graduate civil or electrical engineers with responsible field experience on steam power plants or related large industrial projects. Must be experienced in directing the civil-structural or electrical phase of a large construction project.

Please write immediately giving complete qualifications.

BECHTEL CORPORATION
220 Bush Street San Francisco, California

WANTED

DECEMBER 1ST FOR 3 MONTH MINIMUM FOREIGN ASSIGNMENT:

1 party chief
1 transit man
1 level man
1 plane table man
1 chief draftsman

Highway location in rough terrain — Prefer group who have worked on similar projects. Write with full particulars and salary requirements — To:

SAM. J. WRIGHT
CONSTRUCTION AGGREGATES Corp.
33 No. LaSalle St. Chicago, Ill.

DRAFTSMAN (CHIEF)
FOR STRUCTURAL STEEL SHOP DETAIL DRAWINGS

Excellent opportunity for a thoroughly experienced man to be in full charge of our new branch office in the South East. We are an old established firm. Write in confidence, giving education, employment record, detailed experience, salary requirement.

P-5504 Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS

Structural, mechanical, and electrical for work on hydro-electric power developments. Write giving full experience record and qualifications.

HARZA ENGINEERING COMPANY
400 West Madison Street Chicago, Illinois

ENGINEERS And DESIGNERS

Arthur G. McKee and Company has openings in their Cleveland, Ohio and Tulsa, Oklahoma offices for:

Instrument Specifications Engineers
Piping Designers
Pressure Vessel Designers
Structural Designers
Concrete Designers
and
Electrical Designers

with experience in petroleum refinery design.

Good hourly rates with overtime
45-hours—5 days per week
Annual profit-sharing bonus

These are permanent positions which are well worth your investigating.

Write giving complete details of education and experience to:

ARTHUR G. McKEE & CO.
2300 CHESTER AVE.
CLEVELAND 1, OHIO

SANITARY DESIGNERS WITH WATER TREATMENT EXPERIENCE

Please forward complete resume with first letter to:

Mr. Charles L. Searles
GIBBS & HILL
INC.
461 Eighth Ave. New York 1, N. Y.

WANTED

Assembly Yard Superintendent

Fully experienced on shop and yard assembly of structural steel fabrication for all types of bridges.

Excellent opportunity for man of experience—attractive salary and bonus.

P-5502, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

COST Accountants—Engineers

Must be experienced in construction costs, and willing to re-locate on project basis with nationally known industrial building firm.

Excellent opportunity offering good starting salary to qualified energetic applicants.

Submit complete record of background, stating availability date and salary requirement.

P-5550, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DESIGNERS AND DRAFTSMEN

Mechanical; Structural; Electrical; Architectural

For work in our Atlanta office on chemical plants, warehouses, and public buildings.

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284 Techwood Dr., N.W., Atlanta, Ga.

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OPERATOR FOR DUAL DRUM PAVERS

Rex and Foote
Top Production—Men Only
Location S.E. New York State
Write Experience

P-5601, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

CONSTRUCTION SUPERINTENDENTS & ENGINEERS

Large chemical company requires construction superintendent and engineers for regular full time positions in central and eastern U. S. location. Chemical plant experience beneficial. Must be willing to travel. Full details of experience, age, salary expected, and when available for work, must be given in first letter. Write Box ENR 744, 221 W. 41 St., N. Y.

Don't forget
THE BOX NUMBER . . .
when answering the classified advertisements in this magazine. It's our only means of identifying the advertisement you are answering.

SELLING OPPORTUNITIES OFFERED

(Continued from page 141)

ESTABLISHED MANUFACTURERS' Sales Representatives wanted by reputable manufacturer whose patented product is used in construction of sewage disposal plants, waterworks, pumping stations, industrial plants, etc. RW-4850, Engineering News-Record.

SALES ENGINEER, College Graduate, familiar with road building work, to sell crushed stone, asphalt and black top to State Contractors and Highway Officials. Must be sober, industrious, and over 25 years of age. Good Salary. SW-5573, Engineering News-Record.

POSITIONS WANTED

CIVIL ENGINEER: Resident or Contractor's Engineer, immediately available. Construction and layout of airports, highways, drainage, grading, paving. Inspection and field plan adjustments. Diversified engineering experience about 40 years includes responsible supervisory U. S. and foreign assignments. Reg. P.E., N.Y. Willing to travel. Excellent references. PW-5241, Engineering News-Record.

CIVIL ENGINEER, 30, French, expected arrive U.S.A. Nov.; Graduate State Public Works School, Eight years experience design, supervision, buildings, sewerage systems, bridges, etc. Would accept Draftsman's job to start, anywhere in U.S.A. PW-5593, Engineering News-Record.

CIVIL ENGINEER, graduate; 42 years general practice; Water supply; hydro-electric; industrial; power plants. PW-5542, Engineering News-Record.

CONSTRUCTION ENGINEER would like to manage branch office for large contract firm, or comparable position. Heavy in estimating and field supervision. Present salary, low five figures. Age 36. PW-5518, Engineering News-Record.

CIVIL ENGINEER, 32, BSCE, desirous of work or association with a future requiring ability and responsibility. Last 6 yrs irrigation system planning and design 2 yrs of which were in So. America. Previous 4 yrs on construction. PW-5524, Engineering News-Record.

CONSTRUCTION MANAGER or Projects Manager available December 1st. Over 25 years diversified experience as Construction Manager and Projects Manager on foreign and domestic work. Outstanding record on reorganizations of delayed projects and in over-all management, coordination and supervision number of simultaneous jobs and all depts. of jobs. Highest references. PW-5586, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, age 35, experience includes both domestic and foreign work, minimum salary requirement $10,000. PW-5570, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: Concrete Pipe manufacturer. Experienced-machine and cast methods. PW-5555, Engineering News-Record.

CONSTRUCTION SUPT. or Project Manager, Sober, Qualified, Reliable. Available for project in Florida or West Indies. Prefer complicated monumental project but location and salary important. PW-5532, Engineering News-Record.

ENGINEER—ESTIMATOR: Industrial processing and boiler plants, utility and high-pressure piping, material-handling, all related equipment and structures, development of equipment. PW-5451, Engineering News-Record.

ENERGETIC CIVIL Engineer—Graduate, age 30, married. Ten years in general construction. Foreign and domestic experience in cost estimating, bidding, planning, over-all coordination, design revision and modification for bridges, roads, railroads, industrial buildings, power distribution stations and airfields. General supervision and administration. Desire responsible position; Available December 1952. P. O. Box 35, Galesburg, Michigan.

EXPERIENCED SUPERINTENDENT (Clerk of the Work) on various Engineering and Architectural projects, desires position where ability to co-ordinate and supervise are requisite. PW-5595, Engineering News-Record.

FIELD ENGINEER—MIT Civil Engineer and Harvard Business School Graduate desires field engineering position with closely held contractor in which management and ownership participation is eventual possibility. Experience as WWII Engineer officer and office engineer, Personal Manager, Assistant to President of large contractor. 28, married. PW-5411, Engineering News-Record.

PURCHASING AGENT 8 years responsible experience with CPFF contracts, directing and supervising Buyers, Expeditors, and Traffic Depts. desires position. Available immediately. Just completed contract. Reply PW-5562, Engineering News-Record.

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ARCHITECTURAL ENGINEERING

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WILSON *Engineering Corp.*
College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS WANTED
(Continued from opposite page)

GEOLOGIST—U. of Wisc. grad., single, age 29, wants job in lab and field work—Midwest preferred. PW-5556, Engineering News-Record.

MANAGER OF general contracting company, presently employed, civil engineer, twenty-five years experience in responsible charge of work, both highway and building construction, desires connection in managerial capacity on a profit percentage basis. Midwest location preferred. PW-5259, Engineering News-Record.

REGISTERED STRUCTURAL Engineer. Fifteen years experience consists of nine years structural design of power plants, industrial and commercial structures, three years miscellaneous experience with contractors, building specialties manufacturers and highway construction. Business management graduate, at present studying Law. Age 37. Minimum salary $8700. Prefer Indiana, Michigan, or west of Mississippi. PW-5614, Engineering News-Record.

SUPERINTENDENT — HEAVY Construction, not a graduate engineer but can handle any size job from estimate thru completion. Age 47, 22 years experience. Following of key man. Prefer Southwest or Deep South. PW-5559, Engineering News-Record.

REGISTERED CIVIL Engineer. 32, 7 years supervisory experience in highway design and construction, domestic and foreign. Assignment in South America desired. Fluent Spanish. PW-5415, Engineering News-Record.

ESTIMATOR—GRADUATE engineer seven years successful experience large general contractor best of references desires opportunity of joining small company of individual contractor that would share ownership. PW-5401, Engineering News-Record.

ENGINEER, REGISTERED, civil graduate, 4 years experience design & construction, 4 years experience engineering sales in concrete & products field. PW-5463, Engineering News-Record.

WORK WANTED

Quality Surveys - Design - Drafting Technical Illustrations. Midwest Engineering & Technical Services, 44 West 113th St., Chicago 28, Ill.

LEGAL NOTICE

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION

Of Engineering News-Record published weekly at Albany, New York for October 1, 1952.

1. The name and address of the publisher, editor, managing editor, and business manager is: Publisher McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York 36, N. Y.; Editor Waldo G. Bowman, 330 West 42nd Street, New York 36, N. Y.; Managing editor, Eugene E. Halmos, Jr., 330 West 42nd Street, New York 36, N. Y.; Business manager, J. G. Johnson, 330 West 42nd Street, New York 36, N. Y.

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4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 49,188.

McGRAW-HILL PUBLISHING COMPANY, INC.
By J. A. GERARDI, Vice Pres. & Treas.

Sworn to and subscribed before me this 9th day of September, 1952.

[SEAL] ELVA G. MASLIN.
(My Commission expires March 30, 1954)

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE

All instruction by mail. Send today for sample lesson and complete details

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5 E. Preston St. Baltimore 2, Maryland

Sealed bids will be received by the Mayor and Members of the Common Council at 5:00 P.M., Wednesday, October 22, 1952 for the following:

Item 1—
Superstructure for steel building consisting of
16 trusses 92 feet long
32 columns 6¾" x 12" x 16 ft.
Roof purlins
Bracing for trusses

Item 2—
Half trusses for Leanto
Corrugated side paneling
Corrugated roof decking

Items may be bid separately or together. Steel may be inspected by contacting City Attorney, Salvatore J. Leombruno, City Hall, Glens Falls, N. Y., Steel to be sold *AS IS, WHEREIS.*

A certified check for ten percent of the purchase price to be included with the bid. No bidder may withdraw his bid within 15 days after actual date of the opening thereof.

The Council reserves the right to reject any and all bids.

KATHERYN V. FITZGERALD
City Clerk
Glens Falls, N. Y.

WANTED

WANTED

Dragline 4 to 10 yard
Shovel 4 to 6 yard
Diesel Electric Locomotive
Shovel ¾ to 1½ yard

state boom length & bucket size condition — location — price

W-5530 Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

Northwest 80-D or Bucyrus-Erie 54-B Shovel
Northwest 6 or Bucyrus-Erie 38-B shovel
Crawler-Cranes with independent boom hoist
20 Ton Truck Crane
Euclid Rear Dump Trucks
Caterpillar Dozer D-7 D-8 & D-6

W-5531 Engineering News-Record
330 W. 42 St., New York 36, N. Y.

WANTED

Late Model Northwest 80D-6-25 Shovels or Back Hoes. Lorain MC 414 or P & H Truck Cranes.

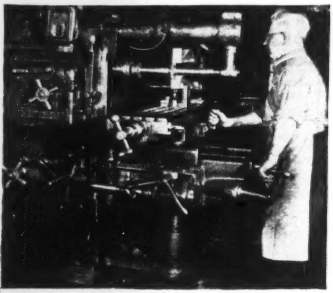
W-5599, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED TO BUY LOCOMOTIVE CRANE

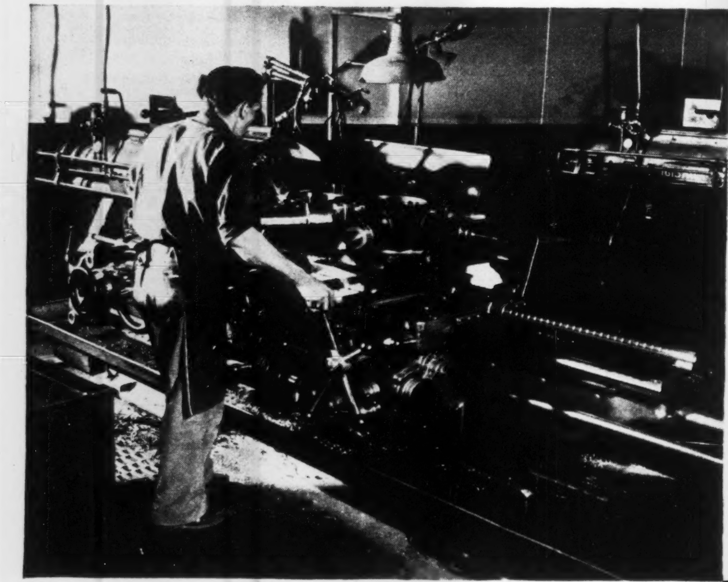
30-40 ton preferably diesel but would consider gas or steam. Give complete description and serial number.

List & Weatherly Const. Co.
231 W. 47th St. Kansas City, Mo.

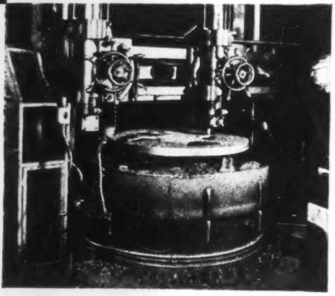
He works with Doctor-like thoroughness



Milling operation on #3 Brown Sharpe milling machine.
Milling slot in Hoist control lever for American locomotive crane now being rebuilt for Bobcock-Wilcox Tube Co., Barberton, Ohio.



Turret Lathe operation on #5A Gisholt turret lathe.
Turning—boring—facing and cutting to length. Bronze bushings for Lorain 820 turntable rollers. With parts in short supply as they are today, the ability to help ourselves is money in our customers' pockets.



Boring mill operation on 60 in. Niles vertical boring mill.
Turning and facing cylinder end casting for Robot laundry washer.

Rebuilding—to make like new—

CONSTRUCTION EQUIPMENT

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To Use the World's Largest Equipment Rebuilding Facilities

Where rebuilding is a business—with over 25 years of experience on all types of construction equipment—where highly trained mechanics with precision tools—can build back into your equipment many years of additional and efficient usefulness—using the same thoroughness employed in rebuilding our own used equipment.

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L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 **NO. 7**

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.

Gardner-Denver 500 cu. ft. diesel, good operating condition.

Schramm 105 cubic foot gas powered compressor on 4 steel wheels.

Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.

Paving breakers, jackhammers, wagon drills, tie tampers.

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2020 Cedarapids Double Impeller. New condition.

2036 Cedarapids AAA primary unit on rubber.

1036/2418 Cedarapids Jr. Tandem unit on rubber.

4024 Cedarapids roll, rebuilt.

3018 Cedarapids roll, rebuilt.

Cedarapids Rock-It plant with 2025 jaw, 3033 mill. New.

Cedarapids 1236 Model 6C plant, new.

10x7 Allis-Chalmers Blake type jaw crusher.

#1 Cedarapids Kubit impact breaker.

4' x 6' Kennedy Van Saun single deck.

3' x 6' Kennedy Van Saun triple deck.

15 cu. yd. Cedarapids sand drag, new.

16" x 90' bucket elevator.

60-ton, 2-compartment, 8'x18' storage bin with clamshell gates.

Special bins to your specifications.

Conveyors—18"—24"—30"—36". Also belt.

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1½-ton Ford with any body.

2000-gallon tanks on semi-trailer mounting.

New and rebuilt dump bodies.

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1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

Osgood Model 900, 1¾ yd. diesel combination.

Lorain 55, 1-yd. shovel.

Link-Belt LS85, rebuilt.

Lorain 40 truck crane on Mack 3-axle truck.

Unit 1020, ½-yd. gasoline crawler shovel. Good condition.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.

Backhoe Buckets & Attachments

Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105. 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

LIFTING MAGNETS

2—45" Ohio lifting magnets, rebuilt.
1—36" ECM lifting magnet, rebuilt.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

CONCRETE EQUIPMENT

Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944, rebuilt.
Corr formgrader, new 1944, rebuilt.

TRACTORS

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TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

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Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

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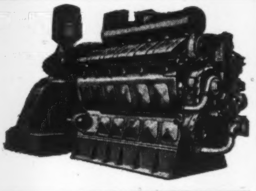

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KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1136	Fairbanks Morse	38D	1600	720	320	Enterprise	DSG–6	560	450
1100	General Motors	16–278A	1600	720	300	General Motors	8–268A	450	1200
1000	General Motors	16–567B	1440	720	200	General Motors	8–268A	350	900
750	General Motors	12–567	1080	720	100	General Motors	3–268A	150	1200
500	General Motors	8–278A	750	720	100	Worthington	BB–5	150	600
500	General Motors	8–567	720	720	60	General Motors	6–71	90	1200
350	Baldwin	VO–6	510	450	30	Internat'l Harvester	UD–14	45	1200
320	Buckeye	80	480	600					

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SALE OR RENT

1—25-Ton Link Belt HC-90 Truck Crane 120′ Boom
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1—20-Ton N. W. Truck Crane
1—¾ Yd. Bay City Diesel Crane
1—2 Yd. Koehring 803 Crane
1—30-Ton Davenport Diesel Loco.
2—1¼ Yd. Bay City Crane or Shovel Diesel
1—¾ Yd. Lima 34 Shovel Diesel
1—45′ Boom & 10′ Jib for Link Belt 85 or 90, New
1—50-Ton Whitcomb Diesel Elec. Locomotive
1—70-Ton G.E. Diesel Elec. Locomotive
2—No. 6 and 80-D Northwest Shovels
1—Northwest 25 Shovel Attachment
1—40-Ton Industrial Brownhoist Oil Fired Loco. Crane, New 1943

B. M. WEISS CO.

Girard Trust Co. Bldg. Phila. 2, Pa.
Rittenhouse 6-2311

FOR SALE

65 Ton G.E. Diesel Elec. Locomotive.
50 Ton Colby 240 Elec. Gantry Crane.
3 Yd Lima 1201 Dragline 120′ Bm. 1947.
30 Ton Ind. Brownhoist Gas Loco. Crane.
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25 Ton Wiley Steel Stiffleg. 110′ bm.
Rex 200 Single Pumpcrete. Gas Powered.

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509 Locust St. St. Louis 1, Mo.

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Buc-Erie 170-B Electric Shovel. New 1949.
Buc-Erie 120-B Electric Shovel. 5 yds.
Page 625-S Diesel Dragline 150 ft. boom.
Page 618-S Diesel Dragline 110 ft. boom.
Koehring 304 Shovel ¾ yd. Rebuilt. Diesel.
P&H 855-B 1½ yd Shovel-Crane-Drag. Diesel.
Northwest 80-D Dragline. Diesel. 100 ft. boom.
Lorain Motocrane MC4 15-18 tons capacity.
Koehring 304 Truck Crane 20 tons cap. 80′ boom.
P&H 255-A 20 ton Truck crane 80 ft. boom.
Link-Belt K-520. Diesel Shovel. 3 yds.
Link-Belt K-595 Dragline, 2½ yds. Diesel.
Lorain L-82 Diesel Shovel, 2 yd.

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Cat. D7 Traxcavator. Rebuilt
Cat. D7 Traxcavator. Rebuilt.
Cat. D4 Traxcavator. Rebuilt.
Hough Payloaders Models HLA, HFH, HE, HA.

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Large plant 212 yds., 6 compt., agg. and cement elevators, 56-S Mixer. Excellent.
Large plant 400 yds., 5 compt. with 2 yd. Koehring Mixers. Write for details.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin 100 tons 3 cpts. 2 yd. weighbatcher. New.

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Cummer 1500 lbs. Semi-Port. Very good.
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Steel 35′ stiff leg derrick 100′ boom.
American 20 ton stiff leg derrick 90′ boom.
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2 Ransome 34-E Dual Drum Pavers Diesel.
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Greensburg, Penna.

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Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
Drop Pile Hammers and Caps
Steel Sheet Piling

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Phone Valentine 4740

AIR COMPRESSORS

17 Diesel 315, 500, 630, 900 & 1500 Ft.
22 Elect. 676, 1080, 1302, 1730, 2200, 3178, 3865 Ft.
11 Low Pres. 743, 1080, 2200, 3000 & 6040 Ft.

CRANES — SHOVELS — DRAGLINES

7—Diesel & Steam Loco. Cranes—20, 25, 30 & 40 T.
9—25, 40, & 60 Ton Steam & Elec. Whirley Cranes.
2—41B Bucyrus 1-½ Yd. 60′ Boom Steam Crane.
30 Ton Ohio Diesel Locomotive Crane.
54B Bucyrus, 80D Northwest Diesel Shovels-Drags.

TUNNEL EQUIPMENT

33—Conway, Enco & Gardner Denver Tnl. Shls.
26—Battery & Trolley Locomotives, 4, 6, 8 & 10 T.
266—Tunnel Cars, 1, 2, 4, 6 & 8 Yd. Cap.

RAILROAD CARS

164—Dump Cars 1½, 2, 3, 5, 16, 20 & 30 Yd. Cap.
96—10,000 Gal. Tank Cars—100 Box Cars.
128—40 & 50 Ton Flat Cars—68—50 Ton Gondolas.

LOCOMOTIVES

17—Diesel 100, 80, 65, 30 & 10 Ton.
42—Gasoline 35, 25, 20, 16, 10 & 8 Ton.
9—Steam, 40, 50, 80 & 100 Ton.

HOISTING ENGINES

STEAM: 14x12, 9x10, 8½x10 & 7x10.
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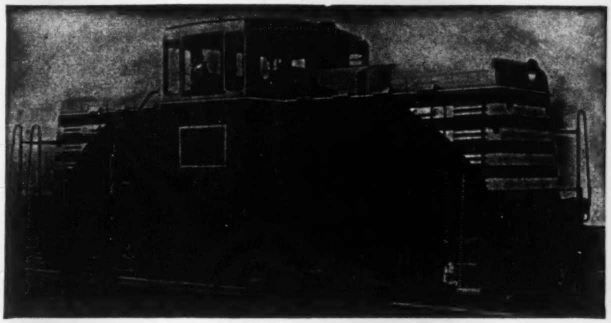

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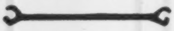

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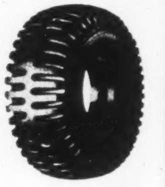

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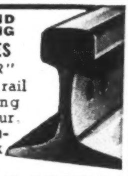

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Welder, Lincoln, 400 Amp., 220V, Like new
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Model 414—with 105' Boom and Jib
Excellent Condition.
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NEW PRODUCTS

Transit-levels styled for builders

C. L. Berger & Sons, Inc. of Boston made a survey recently among builders and contractors to determine their needs in transits, levels and other measuring devices. Many confirmed the thinking of the company, saying that they were willing to sacrifice extremely high precision—unnecessary in many building phases—for an instrument that had the degree of accuracy that their work required, and at a comparatively lower price. The result was recent announcement of Berger's "N" line of four moderately priced instruments. One of them is the Convertible transit-level above.

Joseph Valle, president of the Valle Contracting Co. of Staten Island, N. Y., is shown above. He says: "The Convertible is one of the first things on my job and practically the last to leave. I use it first for checking existing site contour, then for staking out foundations, checking cuts and fills, laying out sanitary and storm drains and so on, right up to establishing final grades."

He claims that he and his assistants "got the hang of the instrument" in a very short time and that he can be set up and ready to go in a matter of minutes. On one recent job he was able to locate eight buried survey stakes in less than an hour.

The "N" line includes, as well as the Convertible, a heavy-duty 12-in. level, a service transit-level and a hand level. Each is constructed of brass and bronze, like their more expensive counterparts. Appearance of the "N" line in no way affects production of Berger's high precision line. Descriptive booklets giving complete specifications on the "N" line are available from C. L. Berger & Sons, Inc., 37 Williams Street, Boston 19, Mass.

Heater, run by propane has removable torch

From the fast-growing liquid propane gas equipment industry comes a double-purpose portable heater ideal for winter construction jobs. The Chinook Wind heater uses propane or butane gas and is said to provide instant, heat, free from smoke, soot, fumes and carbon monoxide.

Measuring 2x3x4 ft high and weighing only 150 lb, it moves on rubber-tired, semi-pneumatic wheels. Its maximum capacity is 3,500 cfm (500,000 Btu), at 250 deg.

The heater's torch has a dual purpose. It is readily placed into the burner channel assembly, which automatically locates it, and is easily removed for many other heating jobs.

Flame- and water-proofed canvas duct, 12 in. in diameter and in 12- and 24-ft lengths can carry heat to any needed spot. The heater can be used on inside jobs in communities where ordinances ban oil and gasoline types; wherever ordinances require an outside fuel source, it can be taken inside with its hose or copper tubing bringing in gas from an outside tank. International Manufacturing Company, 2249 South Delaware Street, Denver, Colorado.

(Products continued on page 156)

COMMONWEALTH OF KENTUCKY
CAPITOL ANNEX, Frankfort, Ky.
Architects—Meriwether, Marye & Associates
Lexington, Ky.
Engineers—Procter-Ingels Engineers Associated
Lexington, Ky.
Heating Contractor—B. A. Walterman
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2 more BIG RADIANT HEATING INSTALLATIONS

select the time-proved protection of

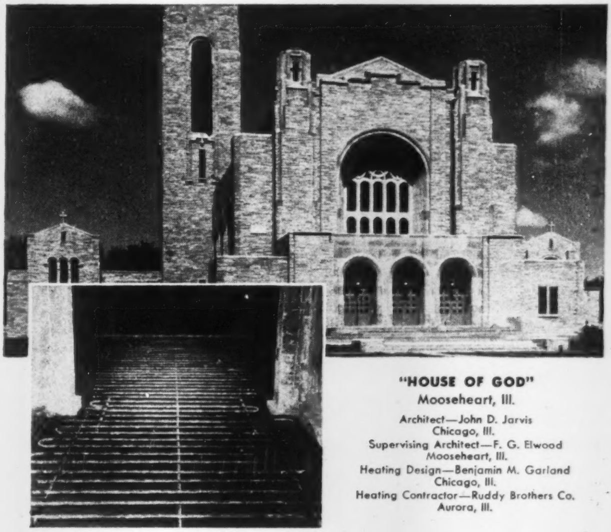
BYERS WROUGHT IRON PIPE

The established and continued acceptance of Byers Wrought Iron pipe for radiant heating systems is supported by thousands of past successful applications, and is constantly being confirmed by the growing number of current installations.

The two radiant heating installations covered here are typical of the confidence today's leading engineers hold for this time-proved material. In the Commonwealth of Kentucky's new $6 million Capitol Annex more than 24 miles of Byers Wrought Iron pipe was installed to safeguard the largest radiant heating system in a public building. And in "House of God," one of the largest radiant heated churches in the country, nearly 7 miles of 1½-inch Byers Wrought Iron pipe was laid in the church floor, steps and altars to provide the desired durability.

Write today for our bulletin, BYERS WROUGHT IRON FOR RADIANT HEATING.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.



"HOUSE OF GOD"
Mooseheart, Ill.
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Chicago, Ill.
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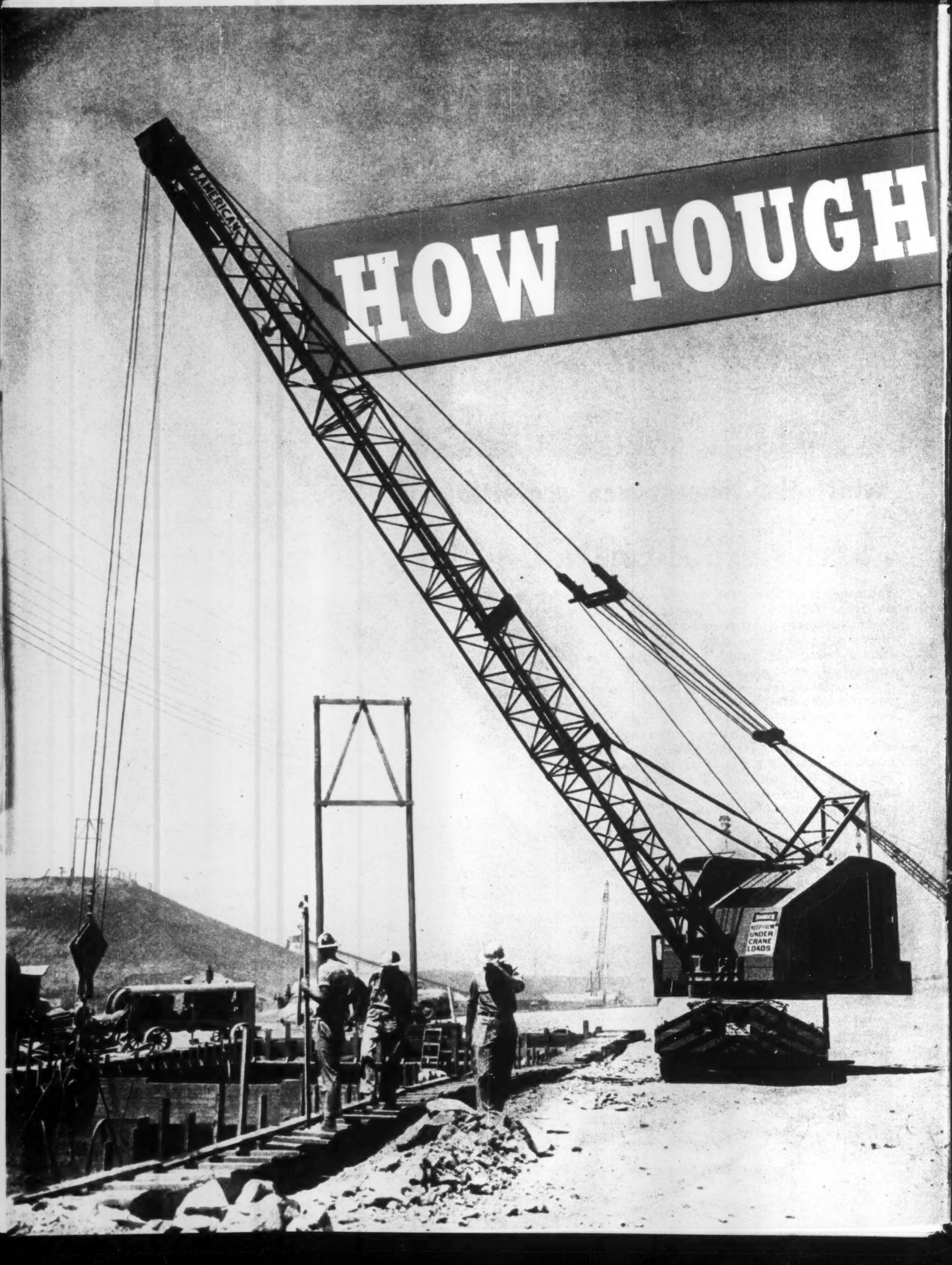

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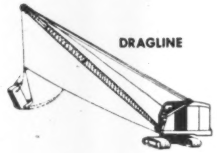
AMERICAN
DANGER
KEEP FROM
UNDER
CRANE
LOADS

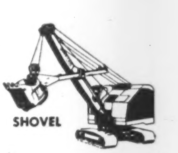
ARE YOU?

Fighting Controls?

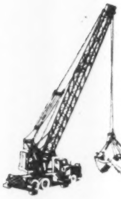
...not on the American 375!



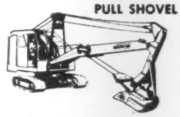
DRAGLINE



SHOVEL



TRUCK
MOUNTED
CRANE



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Anti-Friction bearings make it the sweetest, easiest operating machine in the field today—anti-frictions in the brake linkage cut leg work over 50%—anti-frictions in every clutch drum and clutch shaft give you sensitive, safe control—you "feel" your load every second and, mister, with control like that your production goes UP!

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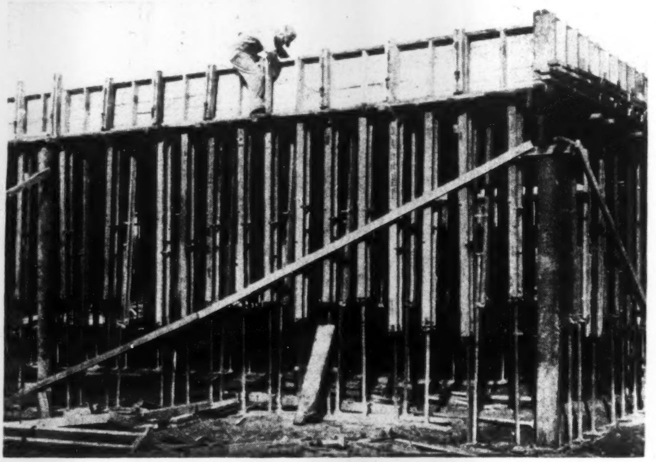


New shore has wooden bracing

Rooshors are fully adjustable one-man shores that incorporate upper members of wood, so that they can be easily braced in any direction. Although bracing is ordinarily not necessary, it can be easily accomplished with Rooshors which are adjustable to every fraction of an inch. Since screw adjustments may become clogged with concrete or dirt, and since pins may become lost, both of these methods are supplanted by the special type of automatic lock that acts like a pair of giant tongs and exerts a locking pressure three times greater than the load, providing an ample safety factor.

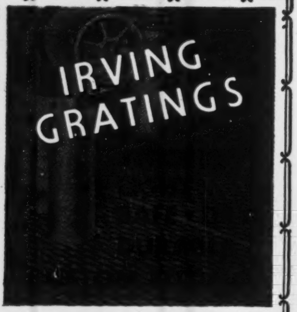
Placing a Rooshor is a simple operation: they have longer adjustments than most other shores—6 foot adjustments on both 7- to 13-footers and 8- to 14-footers. The smaller size adjusts from 5 to 9 feet. Available for rental or for sale from distributors for Baker-Roos, Inc., 602 West McCarty Street, Indianapolis, Indiana.

Thickness tester's searcher held in place by fixture

Whenever only one side or end of a tank, pipe or other vessel is accessible an Audigage Thickness Tester has often been brought into play to preclude expensive drill-and-plug methods of checking progress of internal corrosion, etc. One of the faults found with the machine was that it was often difficult to maintain a good contact between the searching unit and the plate being tested. Now the company has devised a magnetic fixture to hold the unit securely.

Good contact is essential in ultrasonic thickness testing, because a frequency-modulated signal must be transmitted into the non-porous material and its frequency adjusted until it equals the natural frequency of the particular thickness being tested. Resonance then occurs and is indicated by an audible tone and deflection of a meter; the actual thickness corresponding to the resonant frequency can be read from a conversion scale on the instrument panel.

(Continued on page 158)



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ESTABLISHED 1902

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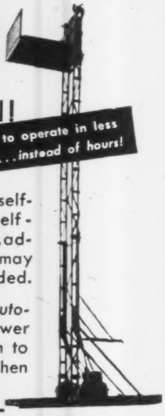
NOW! **BUCK** gives you the *only complete* automatically-portable heavy-duty **HOISTING MACHINE** in the world!



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Ready-rigged, self-erecting tower. Self-erecting to 40-feet, additional sections may be added if needed.

Wheels retract *automatically* when tower goes up . . . return to towing position when tower is lowered.

Raises 2000-pound load at rate of 100 feet per minute.

Pneumatic trailer mounted . . . finger-tip balance. Easily towed by pick-up truck.

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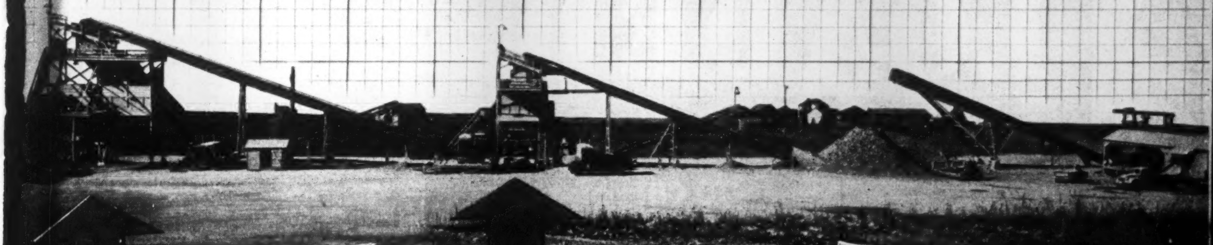
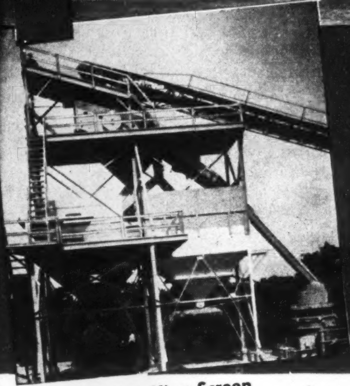
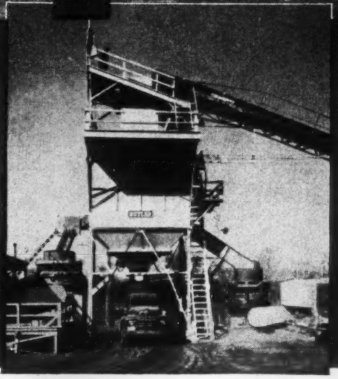
TO PRODUCE 300 T.P.H. FOR NELLO L. TEER CO.

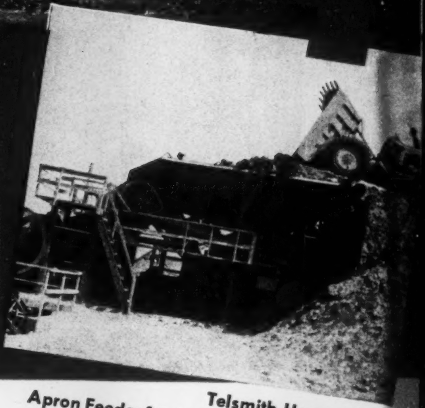




Telsmith Vibro-King Screen and one of three Gyrasphere Crushers



Two of this plant's three Telsmith Gyrasphere Crushers



Telsmith Heavy-Duty Apron Feeder feeds 30″x42″ Primary Jaw

TELSMITH
Equipment in this plant

- One (1) 42″ x 14′ Heavy-Duty Apron Feeder
- One (1) 36″ x 6′ Heavy-Duty Plate Feeder
- One (1) 5′ x 12′ Pulsator Double Deck Scalping Screen
- One (1) 489 Special Coarse Gyrasphere Secondary Crusher
- Two (2) 48 Fine Crushing Gyrasphere Tertiary Crushers
- One (1) 5′ x 12′ Vibro-King Triple Deck Finishing Screen
- One (1) 20″ x 15′ Twin Screw Classifier
- Five (5) Telsmith-BG Conveyors, 18″ to 30″ wide, 72′ to 150′ long

● Large capacity of hard and abrasive granite, crushed to small sizes, features this Durham, North Carolina quarry plant. Telsmith-engineered-and-equipped to fit local conditions, it produces minus 1½″ traffic-bound macadam, minus ¾″ stone for asphalt plant, and minus 2½″ concrete stone; all meeting North Carolina State Specifications, and used in black-top plants and for roads and concrete construction.

Reliable tests show a capacity of about 300 tons per hour of minus 1½″ including about 70 tons per hour of minus ⅜″ asphalt stone; or, about 170 tons per hour when producing all minus ¾″ stone. Its three (3) Telsmith No. 48 Gyrasphere Crushers are responsible for this high capacity of small sized products.

Take your aggregate production problems to Telsmith Engineers. Send for Bulletin 266.

Q-23

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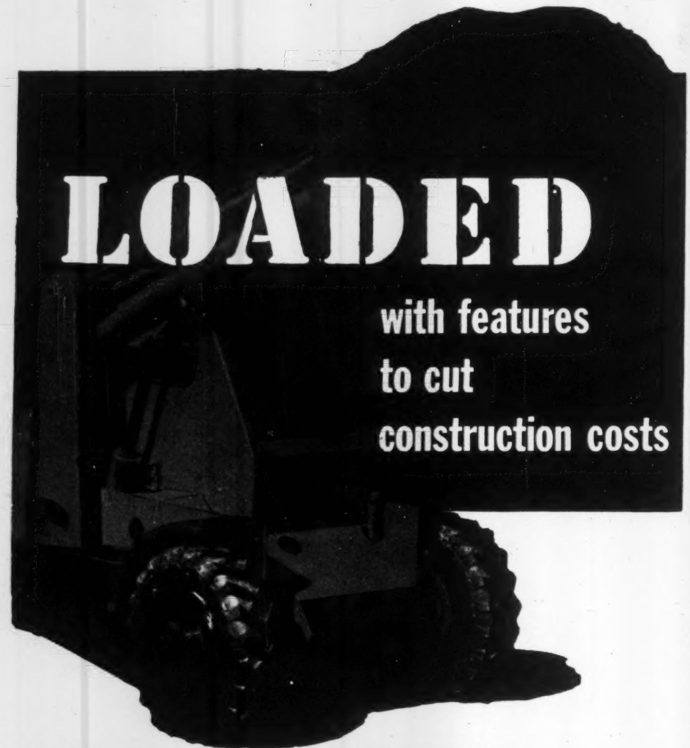

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FULL HYDRAULIC FRONT-END LOADER

Handle more loads per hour . . . and a heaping bucketful every time . . . with the all-hydraulic SCOOPMOBILE engineered to cut costs and accidents on every construction job.

Bucket on powerful hydraulic arm scoops a smooth arc and automatically levels for fast cycle lift to dumping position. Tricycle chassis and power steering give maximum maneuverability. Operator in clear-vision safety cab directs every operation with finger-tip controls.

Years-ahead design and rugged construction give long life and heavy-duty service.

It dozes . . . scoops . . . transports . . . backfills . . . loads all types of bulk materials.

- **Standard $^3/_4$ cu. yd. bucket scoops chassis-width track.**
- **Rated lifting capacity, 4,000 lbs.; standard discharge height to 8 ft.**
- **Heavy duty industrial engine and planetary drive axle with 3 to 1 reduction ratio gives ample reserve power.**
- **Can be driven at speeds to 20 m.p.h. and towed from one job to the next.**
- **Quick-change attachments include: Swivel type concrete hopper. Lift forks.**

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Box 7527 • Portland 20, Oregon

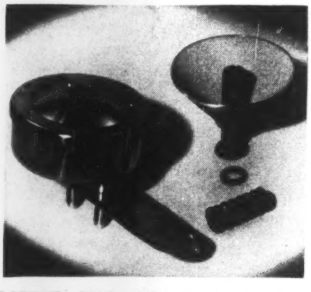
The fixture consists of an Alnico permanent magnet coupled to each end of a flat spring and a clip that attaches the searching unit quickly and easily to its center. Standard magnets can hold the unit properly against surfaces that are slightly irregular or covered with a thin coat of paint; heavier magnets can be provided for use on cast iron and other rough surfaces, or on plates that are covered with thick coatings of paint or scale. The standard fixture weighs only 6 oz and is 5 in. wide. BRANSON INSTRUMENTS INC., 430 FAIRFIELD AVENUE, STAMFORD, CONN.

Permanent element is secret of new oil filter

Many busses and trucks, as well as heavy construction machines, are sporting a new type of oil filter which uses a revolutionary principle of operation. Known as "Filterall," it features a permanent metal filtering element which eliminates the need for cartridge pack replacements and at the same time will not cause a loss of oil through absorption. In Navy test labs and in private laboratories as well it has come through with flying colors. It's about half the size of a conventional oil filter.

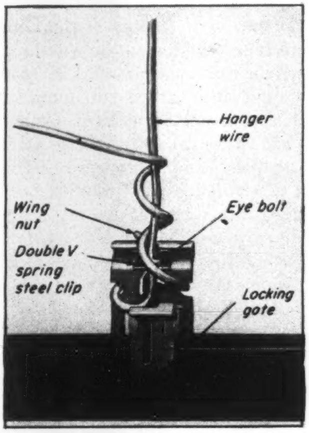
The secret is its permanent element, constructed of carefully-sized, spherical-shaped bronze particles fused together where they touch. This provides a porous structure which allows 100 per cent of the oil to filter through six times faster than is ordinarily the case, according to the manufacturer. Yet foreign matter, as small as 5 microns, is prevented from remaining in the oil.

Also, it will not bypass cold oil, but will operate with full efficiency the



MODEL 200B "Filterall" is shown at left, ready to be installed on an engine that has no filter or to replace one already in use. At right is conversion kit which fits all Fram, Purolator, AC, Winslow, Walker and other makes in service.

moment the motor is started. It's guaranteed not to filter out, nor absorb, any protective additives which almost all modern oils contain. Models are available for conversion of most passenger cars and heavier engines, as well as for engines not equipped with any filter currently. PERMANENT FILTER CORP., 2309 RIVERSIDE DRIVE, LOS ANGELES 39, CALIFORNIA.



Hung ceiling installations speeded with new clip

The E-Z Level Clip has been designed to eliminate problems in leveling 1½-in. standard furring channels for suspended ceilings. They have been particularly designed to work with #8 standard wire hangers.

First step in an installation is to slip the hanger wire through an eye on the metal clip when it is at approximate finished ceiling level. A small wing nut tightens the hanger wire against a double V spring steel clip. The 1½-in. channels are then simply installed and held upright by raising or lowering a small locking gate on the lower half of the clip.

Since channels are held only on the top flange, the lower half remains free to receive furring and other nailing channels which may require exact installed centers. This eliminates the hazard of destroying the level by bumping hanger wires right or left.

Final adjustment is made by loosening the small wing nut. When it is again thumb-and-finger tightened, the wire hanger is bent around notches in the clip sides to maintain level securely. SUSPENDED CEILINGS DIVISION, THE SANYMETAL PRODUCTS CO. INC., CLEVELAND, OHIO.

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EDITORIALS

Marvel or muddle?

THE TAXPAYER, in whose interest congressional investigations presumably are undertaken, must now be completely confused on the Moroccan airbase situation. Early this year an investigating subcommittee of the Senate Armed Services Committee charged the contractors, the Army Engineers and sundry others connected with the jobs with waste, incompetence and corruption, creating the impression that the fields were far below standard if not useless. Now comes a subcommittee of the House Appropriations Committee which says the earlier investigation did a grave injustice to those attacked, and that a remarkably creditable job was done in Morocco under the circumstances that surrounded the operation. One has the choice, therefore, of wondering whether Moroccan airbase construction was a muddle or a marvel.

We entertain no doubts that this last committee report is nearer the truth than the first one, as anyone who has followed our earlier discussions will conclude. The first investigation turned into a witch hunt, made sweeping charges based on questionable testimony and in general magnified the faults without measuring them against the conditions. The second investigation was much more thorough and, above all, probed the reasons for the shortcomings rather than assumed that everyone was guilty of incompetence or corrupt practices until proved innocent.

And although it was carried out under the auspices of a committee basically friendly to the Corps of Engineers—which along with the contractors was the principal butt of criticism—the essential justice of its findings can hardly be questioned. The job was not without its faults and mistakes and waste, but it was not corruption, nor wilful neglect of good practice that caused them. The fundamental trouble lay in the rush nature of the operation.

Before interring the Moroccan airbase situation, therefore, its real object lesson should be restated: Jobs that are demanded on a rush basis and required to be carried out under a secrecy label are in for trouble and are going to be costly, as we said last week in these pages.

In these days of international alarms there are going to be times when the decision to rush a job must be taken. That will increase its cost and create waste. But there is seldom if ever any excuse for compounding the difficulties and the cost by trying to conduct it as a secret operation. The kind of contractors and engineers who are entrusted with these big jobs are competent and honest, and they are intensely patriotic or they wouldn't willingly subject themselves to the troubles and extreme chances for loss inherent in such work. When they undertake it they should be relieved of the expense and responsibility of operating behind a screen of secrecy. The resulting increase in their efficiency would do more to give the taxpayer his money's worth than any other change that could be made.

The bold approach

OPENING LAST WEEK of two more sections of the Long Island parkway system calls attention to the wise long-range plan for the system that was conceived 25 years ago by Robert Moses and since carried out under his direction. Had such a plan not been drawn up and actively pushed, the loss to the area would have many times exceeded the cost of the facilities, great as that has been. Here is a powerful argument for communities which are wondering if they can afford some facility that seems wise but too expensive. Here is an example where failure to act would have had a crippling effect, and where the bold approach paid off.

Speaking before the New York Regional Plan Association's seventh annual conference last week on the general subject of traffic congestion, David Rockefeller emphasized this failure-to-act thesis by stating that, "Non-action in many circumstances, is more expensive than a seemingly high-priced construction program. What is needed most is a bold and imaginative approach."

Such an approach is what benefited the Long Island parkways. When the plan was drawn up in 1927 it encompassed 130 miles of high-grade highway in Nassau and Suffolk counties, laid out as two parallel roads, 5 to 10 miles apart and connected by two crossroads so that there would be an inner and outer loop that people in the more populous western part of the island could take on a pleasure drive. There was also a 30-mile system in Brooklyn and Queens envisioned as a feeder system for the external roads, as well as a means of internal traffic relief.

Money was available for only small sections to be built at a time, but year by year the plan emerged into reality. Changes in type of roadway, but not in location, were made as traffic conditions changed—undreamed of numbers of cars and as much business as pleasure driving. Now the system is essentially complete, with the exception of spurs to three state parks at the eastern end.

The Long Island parkway system is a monument both to long-range and large-scale planning where the cost seems—and frequently is at the beginning—bigger than the budget will allow. Too often the certainty of growth—and the growth that will be engendered by the facility itself—are overlooked when deciding whether an improvement can be afforded. Then is when a bold and imaginative approach is needed.

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Michigan Model C-16, ½ yd. clamshell, equipped with 30-inch crawler pads.

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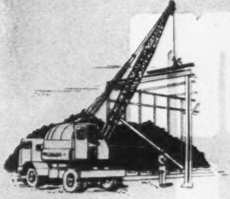

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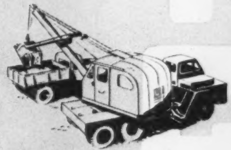

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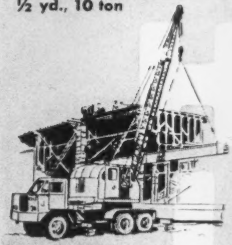

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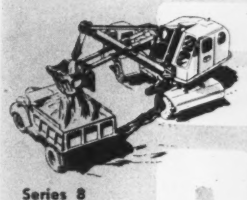

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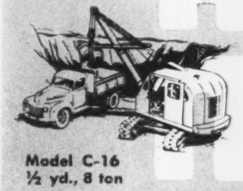

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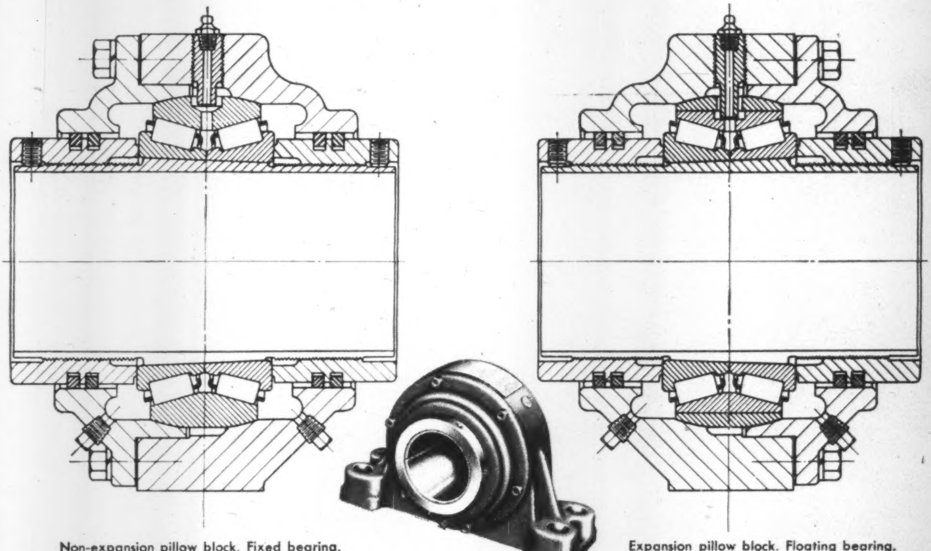

Non-expansion pillow block. Fixed bearing.

Expansion pillow block. Floating bearing.

First application of new tapered bore TIMKEN® bearing makes new Dodge-Timken pillow block more compact

IT takes up less space. It weighs less. Yet the new Dodge-Timken® All-Steel pillow block has tremendous load-carrying capacity.

It's the result of the combined achievements of the Dodge Manufacturing Corporation, Mishawaka, Indiana, and The Timken Roller Bearing Company and makes use of an entirely new Timken bearing. Never before has a self-aligning, non-adjustable tapered roller bearing with tapered bore been used in pillow blocks.

Being of all-steel construction, this new Dodge-Timken pillow block is more compact and fills a real need where space is a factor. It is available in both expansion and non-expansion designs. And it incorporates all the advantages of Timken tapered roller bearings.

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When you install new Dodge-Timken pillow blocks, you can expect dependable performance because the bearings are the best. No other bearing can give you all the advantages you get with Timken bearings. Specify them for all your other machinery, too. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

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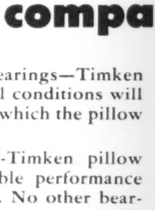

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